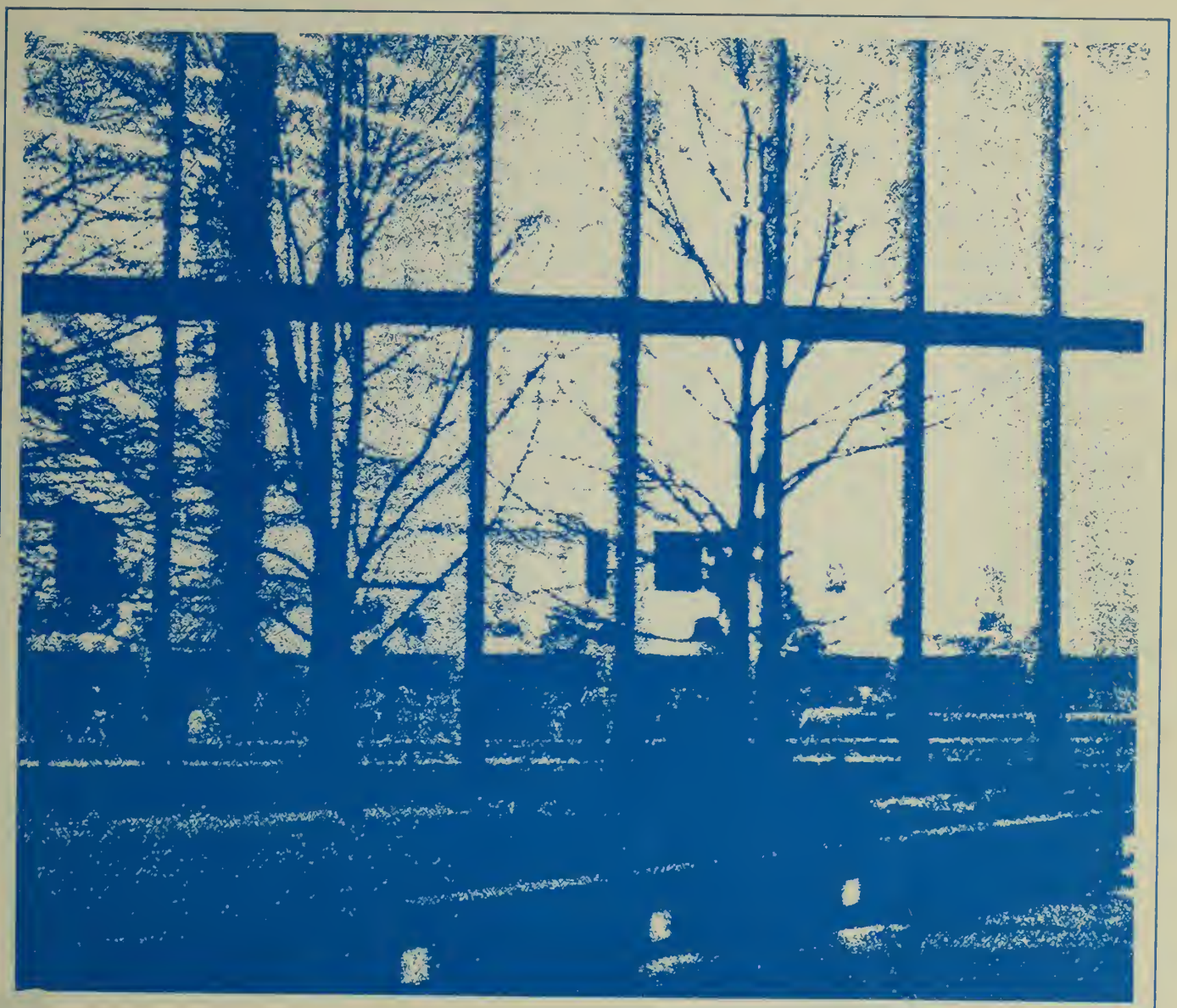

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Fitchburg State College maintains its policy of non-discrimination and affirmative action in fulfillment of the requirements of Executive Order 11246 and 11375, Titles IV, VI, VII, IX and X of the Civil Rights Act of 1964 as amended in 1972, Section 504 of the Rehabilitation Act of 1973 and other applicable state and federal statutes.

To the College Community:

Fitchburg State College has a proud heritage of service to its students and to the Commonwealth of Massachusetts.

The college understands its role of educating for a better world and for a more self-fulfilling life for all of its graduates as participants in the future world. In order to accomplish this enviable task, the college faculty engage our students in vigorous pursuit of the truth. The teaching-learning function and research elements which are integral to the successful acquisition of knowledge are a rigorous and exciting part of what we call the Fitchburg State College community.

Each student who enters the college should expect to find an honest welcome and the willing hand of service and friendship from each fellow student and from all the members of the college staff. The student should also expect to find an academic program which is challenging to the intellect; and which provides for the broadening of horizons about the world in which one lives, and of the world that lies before the student which should be enriched because of his experiences as a student here.

In addition the student should find many exhilarating opportunities that come from the interchange of personal pleasures, interests, fears, and joys with fellow students. College life provides unusual opportunities for people to assess the human qualities in each other and to learn the benefits of true friendship.

We at Fitchburg State College hold that this is a worthy institution, and that those who join us will leave us as more knowledgeable, thoughtful and concerned adults. Your attendance here shows that you share our aspirations. We trust that you will be successful in attaining them.

Vincent J. Mara, Ph.D.
President

BOARD OF TRUSTEES OF THE MASSACHUSETTS STATE COLLEGES

Name	Town	Year Term Expires
George H. Ellison, *Chairperson*	Dover	1-24-79
Alette E. Reed, *Vice Chairperson*	Brookline	1-24-81
T. Dustin Alward	Randolph	1-24-83
Ralph J. Baldasaro	Chester	1-24-82
Ruth L. Briggs	Walpole	1-24-79
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Walter H. Flinn	No. Andover	1-24-80
Barbara L. Jacque	Fitchburg	6-30-79
Oliver W. Kerr	Granby	1-24-82
Janet C. Solvin	Worcester	1-24-81
Melissa A. Tillman	Boston	1-24-82
Leroy Keith, Jr., Chancellor (Ex-Officio)	Boston	
Chancellor James J. Hammond (Ex-Officio)	Fitchburg	

FITCHBURG STATE COLLEGE CALENDAR

Fall, 1978

September 4	Monday	Residence Halls open for Student Teachers and new students only, 3:00 p.m.
5	Tuesday	College open, including Residence Halls; First Station of Student Teaching begins
6	Wednesday	Classes begin, 8:30 a.m.
October 5	Thursday	U.S. & Mass. Constitution Examination
9	Monday	Columbus Day - No Classes
27	Friday	First Student Teaching Station Ends
30	Monday	Second Student Teaching Station Begins
November 10	Friday	Veteran's Day - No Classes
16	Thursday	U.S. & Mass. Constitution Examination
22	Wednesday	Thanksgiving Recess begins - Classes end at 2:30 p.m. Residence Halls Close
26	Sunday	Thanksgiving Recess ends; Residence Halls reopen at 3:00 p.m.
29	Wednesday	Last Day for withdrawal from classes without penalty
December 13	Wednesday	Last Day of Fall Semester classes
14	Thursday	Reading and Review Day
15	Friday through	Final Examinations; Saturday, December 16 is included in Exam Schedule
22	Friday	Second Student Teaching Station ends Residence Halls close - 3:00 p.m.

Spring, 1979

January 21	Sunday	Residence Halls open 3:00 p.m. for Student Teachers only
22	Monday	College opens; First Student Teaching Station begins; Residence Halls open for all students
23	Tuesday	Classes Begin 8:30 a.m.
February 19	Monday	Washington's Birthday, No Classes
21	Wednesday	Monday Class Schedule
22	Thursday	U.S. & Mass. Constitution Examination
March 23	Friday	First Student Teaching Station Ends Spring Vacation begins 3:30 p.m.
April 1	Sunday	Spring Vacation Ends; Residence Halls open 3:00 p.m.
2	Monday	Second Student Teaching Station begins
13	Friday	Good Friday, No Classes
16	Monday	Patriots Day, No Classes
19	Thursday	U.S. & Mass. Constitution Examination
20	Friday	Last Day for withdrawal from classes without penalty
May 17	Thursday	Last Day of Spring Semester Classes
18	Friday	Reading and Review Day
19	Saturday through 26	Final Examinations - Saturdays, May 19 and 26 included in the exam schedule
25	Friday	Second Student Teaching Station Ends
26	Saturday	Residence Halls close 12:00 Noon
June 3	Sunday	Commencement - 2:00 p.m.

Fall, 1979

September 3	Monday	Residence Halls open for Student Teachers and all new students, 3:00 p.m.
4	Tuesday	College opens, including Residence Halls for returning students; First Student Teaching Station begins
5	Wednesday	Classes begin 8:30 a.m.
October 4	Thursday	U.S. & Mass. Constitution Examination
8	Monday	Columbus Day, No Classes
9	Tuesday	Monday Class Schedule
26	Friday	First Student Teaching Station ends
29	Monday	Second Student Teaching Station begins
November 12	Monday	Veteran's Day, No Classes
15	Thursday	U.S. & Mass. Constitution Examination
21	Wednesday	Thanksgiving Recess begins 3:00 p.m. Residence Halls Close
25	Sunday	Thanksgiving Recess ends; Residence Halls reopen 3:00 p.m.
28	Wednesday	Final Day for withdrawal from classes without penalty
December 13	Thursday	Last Day of Fall Semester Classes
14	Friday	Reading & Review Day
15-22	Saturday	Final Semester Examinations, Saturdays, Dec. 15 & 22 are inlcuded in Examination Schedule
21	Friday	Second Student Teaching Station ends
22	Saturday	Residence Halls close 3:00 p.m.

Spring, 1980

January 20	Sunday	Residence Halls open 3:00 p.m. for Student Teachers only
21	Monday	College Opens; Residence Halls open for all Students First Student Teaching Station begins
22	Tuesday	Classes begin 8:30 a.m.
February 18	Monday	Washington's Birthday - No Classes
20	Wednesday	Monday Class Schedule
21	Thursday	U.S. & Mass. Constitution Examination
March 21	Friday	First Student Teaching Station ends Spring Vacation begins 3:30 p.m.
30	Sunday	Spring Vacation ends; Residence Halls open 3:00 p.m.
31	Monday	Second Student Teaching Station begins
April 1	Tuesday	Friday Class Schedule
4	Friday	Good Friday - No Classes
17	Thursday	Last Day for withdrawal from classes without penalty
18	Friday	Patriots Day - No Classes
May 14	Wednesday	Last Day of Spring Semester classes
15	Thursday	Reading & Review Day
16	Friday through	Final Examinations; Saturday, May 17 is included in Examination Schedule
23	Friday	Second Student Teaching Station ends Residence Halls close 3:00 p.m.
June 1	Sunday	Commencement, 2:00 p.m.

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THE COLLEGE

HISTORY OF THE COLLEGE

The State Normal School in Fitchburg was established in 1894 by an act of the Massachusetts legislature and opened in temporary quarters in the old high school building on Academy Street. Principal John G. Thompson was aided by three teachers, 200 books, and an $11,500 budget for the education of 46 women in a two-year program. In December, 1896, the school moved into its new building and took charge of the Day Street and Highland Avenue city buildings as state schools of observation and practice.

Several years later the Edgerly School was opened on an eight grade model and practice school, and in 1910 it became one of the first junior high schools in the United States. The following year a Practical Arts teacher training course for men, the first of its kind in the country, was instituted. The new course assisted in increasing male enrollment.

In 1932, the school was authorized as a four-year college to grant the Bachelor of Science in Education degree and two years later became State Teachers College at Fitchburg. Over the next decades, many departments such as Special Education, Nursing, and Business Administration were added to the existing education departments, and by 1977 Fitchburg State College was offering thirty-one degree programs in the thirteen academic departments to its 3,400 full-time students and 4,600 part-time students. The campus now has 54 acres and 23 buildings.

ACCREDITATION AND MEMBERSHIPS

Fitchburg State College is accredited by the New England Association of Schools and Colleges, The National Council for Accreditation of Teacher Education and the National League for Nursing.

The New England Association of Schools and Colleges is one of six nationally recognized regional accrediting associations in the United States and is the official accrediting agency for schools and colleges in the six New England states. Institutional membership in the Association indicates that the school or college has been carefully evaluated and found to meet standards agreed upon by qualified educators.

Fitchburg State College is a member of the American Association of Colleges of Teacher Education, The College Entrance Examination Board, The American Assoication of Colleges of Nursing, The American Association of State Colleges and Universities, American Association of University Women, The International Association of Colleges and Universities, The American Council on Education, and The New England Association of College Admissions Counsellors.

GOALS AND OBJECTIVES

THE COLLEGE COMMUNITY

GOAL: A paramount objective of Fitchburg State College is the promotion of the welfare of the entire College community. To this end the college has established the following objectives:

1. To provide a systematic evaluation of present programs, policies, practices, and of all the members of the College community, as well as the regular assessment of needs in conjunction with short, medium, and long-range planning;

2. To strive for the recognition of and respect for the rights and responsibilities of all members of the College community;

3. To establish and maintain well-defined and open channels of communication throughout the structure of the College;

4. To maintain a clearly defined system of governance which calls for active participation by representatives of students, faculty and administrators; and

5. To encourage individuals in their search for meaningful truth and in the honest consideration of ideas both in the classroom and in communication with all members of the College community.

STUDENT DEVELOPMENT

GOAL: The intellectual, esthetic, and moral development of students during their college years demands the existence on campus of an attitude or climate suitable to the attainment of this goal. Therefore, the College aims:

1. To develop a spirit of commitment to learning by stressing high standards of intellectual performance by encouraging scholarly research, by developing the ability to analyze and synthesize knowledge from a variety of sources, and by communicating the conviction that learning is a life-time process;

2. To enable students to acquire knowledge in areas such as the Humanities, Social Sciences, Physical Sciences, Biological Sciences and Mathematics as well as a depth of knowledge in at least one academic discipline and/or interdisciplinary studies;

3. To strive for moral development which requires reflection on and self-appropriation of ethical principles as a guide for personal conduct, as a basis for self-esteem, and as an aid to growing in respect for others;

4. To assist students to:

   a. recognize the great moral issues of our time,

   b. develop respect for all peoples,

   c. seek the improvement of the quality of human life in areas such as environment, social problems and other relevant issues of the day; and,

5. To establish those conditions which are conducive to an esthetic environment that involves students and faculty in the determination and promotion of cultural activities.

CAREER EDUCATION

GOAL: The College aims to assist students in identifying their own personal goals and in deciding their careers. To attain this goal, the College strives:

1. To prepare students to meet the needs of society through careers in areas such as teaching, nursing, medical technology, human services, business and industry, and government, among others;

2. To provide programs preparing students for these careers, including programs geared to new and emerging career fields;

3. To provide options and opportunities, including field services, which aid students in securing employment; and,

4. To provide additional training opportunities intended to renew and update persons already holding jobs.

THE COMMUNITY AT-LARGE

GOAL: The College must acknowledge some responsibility touching on the life of the local, regional, state and national communities. To this end it aims:

1. To serve as a cultural and intellectual Center for these communities;

2. To cooperate with local, regional, state and federal agencies in attempting to solve local, regional, state and national social, economic or government problems;

3. To provide for continuing adult education;

4. To facilitate involvement of students in neighborhood and community service activities; and,

5. To make the most effective and efficient use of the human, natural and material resources provided by these communities.

COLLEGE GOVERNANCE

Among the many organizations on campus, the All-College Council plays a central and vital role. The Council is composed of five students, five faculty members, and five administrators, elected by their peers. The council shares in governance in matters which concern the whole College Community. The Council not only deals with problems which arise, but also recommends policy in areas affecting the entire College Community.

POLICY OF FITCHBURG STATE COLLEGE

Fitchburg State College maintains its policy of non-discrimination and affirmative action in fulfillment of the requirements of Executive Order 11246 and 11375, Titles IV, VI, VII, IX and X of the Civil Rights Act of 1964 as amended in 1972, Section 504 of the Rehabilitation Act of 1973 and other applicable state and federal statutes.

In keeping with Title IX of the 1972 Education Amendments Act, Fitchburg State College guarantees that no student shall be excluded from participation in, denied the benefits of, or be subjected to discrimination in any of the College's programs or activities. This assurance extends to all aspects of the operation of the College affecting students, such as admissions, financial aid, counseling of all types, classroom procedures, academic and educational programs, athletics, housing, funding of activities, and use of facilities.

CONFIDENTIALITY OF STUDENT RECORDS

This is a summary of the **Massachusetts State College System Guidelines Pertaining to Confidentiality of Student Records.** Copies of the Guidelines are available for study at the library and at offices where records are kept.

Education records include "records, files, documents and other materials which...contain information directly related to a student" and "are maintained by an educational agency or institution." The following are excluded: personal files of faculty and administrators; law enforcement records; medical, psychiatric, or psychological records and, employment records of non-student personnel.

Directory Information "includes a student's name, address, telephone listing, date and place of birth, school or college, major field of study, participation in offically recognized activities and sports, weight and height of members of athletic teams, dates of attendance, degrees and awards received, and the most recent previous educational agency or institution attended by the student."

The College will release directory information upon request unless the student involved requests in writing that it be suppressed. Such request must be made annually no later than October 1st or, for second semester entrants, February 1st.

Access Rights of Students: Students may have access to records other than those pertaining to parental financial information and those containing confidential evaluations and recommendations written prior to January 1, 1975. A student may waive his/her right to access to materials submitted after that date but must not be required to do so. When a waiver has been employed, the student may, upon request, be notified of the names of those who have submitted evaluations or recommendations.

Access Rights of Others: No one shall have access to education records without written consent by the student except for the following:

1. Faculty and staff who have a legitimate interest;
2. Federal auditors who require information by state and federal statute;
3. Financial aid personnel processing applications;
4. Research agencies which must use data in such a way that individuals cannot be identified and who will destroy the information when it is no longer needed;
5. Accrediting agencies;
6. Parents of dependent students under certain conditions; and
7. Others in emergency situations involving health or safety.

How to Gain Access to a Record: A student who wishes to examine a record must obtain a request form from the Dean of Students' Office upon presentation of a proper identification card. The request form must be completed, and a photostat together with the identification card presented to the office where the record is kept. Only the permanent card (transcript) is considered as a "permanent educational record." Other records may be destroyed in accordance with established schedules. Students may challenge contents of a record. The keeper of said

record will discuss the challenge and indicate steps available to the student. The correctness of an assigned grade is not open to challenge but the accuracy of its recording is.

Types and Locations of Records: The following listing denotes types of records and the record keeping office in the daytime session of the College. Students in other sessions of the College should consult with the offices of those Divisions to determine their record-keeping locations.

Type of Record	Office of Record
Academic (Transcripts, etc.)	Registrar
Admissions	Director of Admissions
Athletics	Director of Athletics
Disciplinary	Student Personnel Services
Financial	Business Office
Financial Aid	Director of Financial Aid
Placement	Director of Placement
Scholarships	Associate Dean of Students
Veterans	Coordinator of Veterans Affairs

Since physical location of offices is subject to change, the student should consult the directory at the Highland Avenue entrance to the Administration Building.

Questions related to the material above should be referred to the Student Personnel Services Office. Again, it should be noted that the above is a digest and that the complete guidelines are available for study at the offices listed above and in the Library.

PRIVACY AND CONFIDENTIALITY REGULATIONS PURSUANT TO FAIR INFORMATION PRACTICES ACT

Privacy and Confidentiality regulations pursuant to the Fair Information Practices Act - F.I.P.A. - (Chapter 776 of the Acts of 1965) are posted, together with a copy of the Chapter 776 and the name of the F.I.P.A. administrator on appropriate bulletin boards at the College. They may also be examined at the offices of the Deans of the College and of the F.I.P.A. administrator.

Included in these regulations are the following sections intended to implement this law.

I. Intent
II. Definitions
III. Implementation Responsibilities
IV. Security Procedures
V. Maintaining Records of Data Usuage
VI. Access to Personal Data
VII. Data Subject Objection
VIII. General Procedures
IX. Enforcement Procedures

Students should note that if any of these regulations should conflict with applicable provisions of the federal Family Education Rights and Privacy Act of 1974, as amended or of any regulations promulgated pursuant to said act, the provisions of said federal act or federal regulations shall control.

ACADEMIC POLICIES

Degrees Offered

Fitchburg State College is empowered by the Board of Trustees of the Massachusetts State College System to offer the degrees of Bachelor of Arts, Bachelor of Science, Bachelor of Science in Education, and Master in Education.

Bachelor of Arts. The degree of Bachelor of Arts is offered in the following fields: Biology, Chemistry, Computer Science, English, Geography, History, Mathematics, Physics, Psychology, Sociology.

Bachelor of Science. The degree of Bachelor of Science is offered in the following fields: Biology, Business Administration, Chemistry, Communications/Media, Computer Science, Geography, History, Human Services, Industrial Science, Mathematics, Medical Technology, Nursing, Physics, Psychology, Sociology.

Bachelor of Science in Education. The degree of Bachelor of Science in Education is offered in the following fields: Biology, Chemistry, Early Childhood, Elementary, English, Geography, History, Industrial Arts, Mathematics, Physics, Special Education.

Master of Education. The degree of Master of Education is offered in the following areas of specialization: Counseling, Creative Arts, Elementary Education, Industrial Education, Mathematics Education, Occupational Education, Reading, School Leadership, School Psychology, Science Education, Special Education, The Teaching of English, The Teaching of History. Further information regarding these programs may be obtained through the Office of Graduate and Continuing Education.

Master of Arts in Teaching. The degree of Master of Arts in Teaching is offered in English. Further information regarding this program may be obtained through the Office of Graduate and Continuing Education.

ACADEMIC ADVISING

Academic and general advice is available to all undergraduates throughout their enrollment at Fitchburg State College. Through the department chairman and the Dean of Undergraduate Studies, each student is assigned an academic advisor knowledgeable in the student's major academic subject area.

Each student is encouraged to consult the academic advisor at any time during the semester regarding any problems encountered. Individual instructors, department chairmen and the Dean of Undergraduate Studies are also available for academic counseling throughout the semester.

Each student must consult with his/her academic advisor before registering for courses. The academic advisor will then sign and forward the registration materials to the Registrar of the College for processing. All faculty at the College are available to students for five hours a week or by appointment. Their office hours are posted in departments and are also available in the Office of the Academic Dean.

Faculty advisors are allowed to approve student schedules of between 12 and 18 Semester Hours (S.H.) Students wishing to enroll for courses outside of these limits must obtain the permission of their academic advisor and the Dean of Undergraduate Studies. All students will conform to the curriculum requirements at the time of their matriculation to the College. However, the College reserves the right to alter the curriculum requirements where it becomes necessary to meet statutory, educational, or professional requisites or to assure quality educational programs.

ATTENDANCE REGULATIONS

Class attendance is a matter for instructor and student to consider. It is the prerogative of the instructor to place a value on class attendance and it is the instructor's duty to inform students of these views early in the semester and to state the policy in the course syllabus. Students will not be dropped from class on basis of absences.

It is the responsibility of each instructor to maintain a record of attendance for students in classes. Should the need arise for verification of student's attendance, direct reference will be made to the faculty members involved.

Where validation of an absence is available through any source, it is recommended that the student show the validation to all instructors concerned and then place it on file in the Registrar's office.

It is the responsibility of each student to consult with his/her professors prior to an absence or immediately upon his/her return.

AUDITING COURSES

Students are permitted to audit courses, but must have the approval of the instructor. A record of audited courses does not appear on the student's official transcript.

CERTIFICATION PROCEDURES

All senior education majors are responsible for checking graduation requirements and certification procedures at the beginning of their senior year. Certification procedures will be discussed at scheduled meetings early in the semester. Certification requirements, procedures and forms are also available at the Office of the Director of Professional Experiences, rm. 205, Edgerly Hall.

CHANGE OF CLASS SCHEDULES

During the first and second week of each semester students are allowed to change their schedule of classes through the use of an Add/Drop form and with appropriate approval. A student must have the approval of the course instructor in order to add or drop a course during this period and must have the approval of the Dean of Undergraduate Studies and the academic advisor if this change in schedule results in less than 12 or more than 18 S.H. of course work. Add/Drop forms are available from the Office of the Registrar.

CHANGE OF MAJOR

Any student who desires to change his major course of study should obtain the appropriate form from the Office of the Registrar, and secure the signatures of the chairmen of both the department to be entered and the department being left.

Department chairmen will offer advice and assistance and will assign the student a new academic advisor. A student must then satisfy the requirements of the new major program according to the catalog of the year of the matriculation.

CLEP AND ADVANCED PLACEMENT EXAMINATION

The primary goal of the College Level Examination Program (CLEP) is to make it possible for an individual to earn college credit on the basis of examinations. CLEP is a program of the College Entrance Examination Board. The CLEP examinations are very useful for traditional and regularly enrolled students, but they are especially valuable for people whose learning experiences have taken place primarily outside college classrooms.

CLEP POLICY STATEMENT

General Policy: Appropriate credit can be granted on the basis of general and/or individual Subject Examination results. However, a student may not be awarded more than 60 college credits through the CLEP program.

Specific Policies:

1. Credit for, or waiver of courses will be recorded only for students who have matriculated at Fitchburg State College.
2. Credit earned or requirements waived will be recorded by the Registrar upon receipt of an official score report from the College Entrance Examination Board. In recording results from Examinations for which an essay or practical examination is required, approval from the major department will be necessary. (Approval = Pass/Fail).
3. Credit for the General, or for any of the Subject Examinations will not be granted if the student has completed satisfactorily, one or more of the courses listed as equivalent courses to or having similar content to a CLEP Examination.
4. In order to receive transfer credit obtained under CLEP from another institution, the applicant must have a score which is equal to or greater than that score which is the required minimum for credit at Fitchburg State College.
5. The minimum score recommended for each CLEP Examination is based upon the Median (50%) score obtained by students in the normative group.
6. The credit award for each CLEP Examination is based upon the candidate attaining a score equivalent to or greater than the scores listed. The median scores, equivalent courses, credit hours, and policies specific to the General Examination and Subject Examinations are available in the Career Planning and Placement Office.

Evaluation:

1. This policy shall be periodically evaluated to determine its appropriateness in terms of the education objectives of Fitchburg State College.
2. The Subject Examinations of CLEP are constantly being expanded to include additional subject areas. As soon as score interpretation material is available for evaluation, additional CLEP Examinations will be added. The granting of credit for these new Subject Exams should follow the general policy suggested in this Policy Statement.

Advanced Placement Examination

Students who score 4 or 5 on the Advanced Placement Examination will receive advanced placement in the area tested but no credit will be awarded.

Exemption from English Composition

Students scoring 600 on the SAT Verbal Test of the CEEB English Achievement Test, as well as those who have done consistently well in high school English, are advised to take a CLEP exam for possible exemption from and possible credit for English Composition I and II.

COLLEGE ACADEMIC PROGRAM SHARING: CAPS

CAPS allows students at Fitchburg State College to attend another of the Massachusetts State Colleges. The purpose of the program is to allow students to enroll in up to 30 semester hours of courses in another state college without going through formal registration procedures.

CAPS affords students in the Massachusetts State College System an opportunity to enjoy a broad educational experience with a wide range of faculty, programs, and facilities. The CAPS program is not open to freshmen.

DEAN'S LIST AND HONORS

Recognition of academic excellence is noted by the Dean's List and notation of Summa Cum Laude, Magna Cum Laude and Cum Laude at graduation. A student is placed on the Dean's List for the semester if an average grade of 3.20 or better is attained, and the student is attending the college full time.

Graduation honors are noted for recognition of an outstanding cumulative average. A student graduates with highest honor, Summa Cum Laude, if the cumulative academic average is 3.80 or higher. Similarly a student will be graduated with high honor, Magna Cum Laude, if the cumulative average is 3.50 or higher, and is graduated with honor, Cum Laude, with an average of 3.20 or better.

FULL TIME STUDENT

A full time student must take 12 or more semester hours of college credit. A student taking less than 12 S.H. is in danger of losing veterans' benefits, some scholarships and participation in varsity sports. A student who is not registered for 12 S.H. will not be on the Dean's List of the College.

GENERAL EDUCATION

It is the intent of Fitchburg State College that all students be generally and liberally educated. To this end each student is required to take a distribution of courses in the various disciplines. All baccalaureate candidates at Fitchburg State College are required to take a minimum of 60 S.H. in general education courses. In addition to the required courses in English Composition, Speech, and Health and Fitness, the credits are distributed among mathematics and the sciences, the social sciences and the humanities. The humanities and social sciences each have a 15 S.H. requirement, while the math/science area is satisfied by taking four courses distributed among the disciplines. No more than eight S.H. of one discipline may be used to satisfy any of the three requirements.

The *humanities* requirement may be fulfilled by any course in art, music, literature, speech, foreign languages or philosophy. Similarly, the *social sciences* requirement may be fulfilled by taking courses in any of the following disciplines: history, economics, geography, government, political science, psychology, sociology, or anthropology. Finally, the *math/science* distributional requirement may be satisfied by taking courses in mathematics, biology, chemistry, computer science, physics, physical science, earth science, astronomy, meteorology, or geology. A professional or teacher education course will not satisfy a general education requirement. Physical education courses may be used as electives for general education.

GOOD ACADEMIC STANDING

A student is in good academic standing if by the end of both the second semester of the freshman year and the first semester of the sophomore year the student has obtained a cumulative academic average of 1.75 and maintains a 2.00 cumulative average thereafter. A student who is not in good academic standing is either on academic probation or dismissed from the college. The academic probation schedule may be found under Academic Probation and Dismissal.

A student must have an overall cumulative average of 2.00 for graduation, as well as an average of 2.00 in his major courses.

GRADING SYSTEM

The grades given academic work at Fitchburg State College run from 0 through 4 with .5 intervals from 1 to 4 (0, 1, 1.5, 2, 2.5, 3, 3.5, 4). Zero indicates academic failure for a course. 1 or 1.5 is poor but passing, 2 or 2.5 is average, 3 or 3.5 is good and 4 is excellent. Quality points are determined by the following process: The number of semester hours in each course is first multiplied by the grade. Thus a student who takes five, three semester hour courses and receives two grades of 3 (18), two grades of 2 (12) and a grade of 1.5 (4.5) has a total of 34.5 points to be divided by the total of semester hours attempted (15) and attains a quality point average of 2.3 for the semester. An average of 3.2 or better qualifies a student for the Dean's List.

IN is recorded for incomplete, W for withdrawal, and CR for credit.

GRADUATION REQUIREMENTS

In order to graduate from Fitchburg State College with a baccalaureate degree, a student must have successfully completed both the required courses as well as the total number of semester hours necessary for his major program. He must have attained at least a 2.00 cumulative average in the total program as well as in his major field. Before graduation the student shall have completed a minimum of 30 S.H. at the college which is normally undertaken in the senior year. A requirement specific to some education degrees is the completion of the National Teachers Examination. All students at the College must file an application for graduation with the Registrar not later than February 1 of the year of graduation.

According to state law graduates of the College must demonstrate a knowledge of the United States Constitution and the Constitution of Massachusetts. Students may meet these requirements by passing a written examination administered by the Department of Social Sciences. A pamphlet giving further information about the examination and a study guide may be obtained from the college bookstore. Students who successfully complete PS 10, PS 20, PS 22, HI 21 or HI 22 are excused from the examination.

HEALTH AND FITNESS REQUIREMENT

In order to meet the Health and Fitness requirement, students may select one of the following options:

1. One course from Option I;
2. Three courses from Option II; or
3. Two course from Option II and one from Option III.

Option I includes Health and Fitness, Exercise and Sport Science, and Athletic Training and Conditioning.

Option II includes Constitutional Morphology, Introduction to Kinesiology, Consumer Health, Perceptual Motor Learning and Motor Performance, Diet, Exercise and Weight Control, Figure Control through Weight Training, Orientation to Physical Activity, Weight Training for Athletes, First Aid and Safety, Jogging, Sports Concepts, and Pyschology of Sport.

Option III includes Physical Education: an overview, Behavioral Concepts of Sport, Fundamentals of Coaching, Recreational Leadership, Independent Study, Camp Counseling, Physical Education in the Elementary School, Handball, Gymnastics, Volleyball, Tennis, Badminton, Judo, Karate, Cross Country Skiing, Skiing, Backpacking, Mountain Leadership, Canoeing, Folk Dance, Aerobics, Rhythmics, Physical Conditioning, Soccer, Basketball, Advanced Basketball, Softball, Advanced Tennis, Slimnastics, Advanced Volleyball, Recreational Sports, Downhill Skiing, and Beginning Tumbling.

INCOMPLETE GRADES

The grade of Incomplete (IN) is given only if at least 80% of the course work has been completed at the time of discontinuance due to illness or similar disability. Incomplete grades must be made up within four weeks after the opening of the following semester. The "IN" becomes an "F" grade if the student fails to make up the work and fails to take the Final Examination within the prescribed time limit. Incomplete grades do not affect a student's dismissal or retention by the College.

INDEPENDENT STUDY

A student may pursue Independent Study under the supervision of a faculty member. Only 3 S.H. of Independent Study may be attempted in one semester. If a student needs to take more than 3 S.H. of Independent Study, permission must be received from the Dean of Undergraduate Studies.

INTERNSHIP PROGRAMS

Legal Internship

The Legal Internship Program is a one semester 12 credit hour practicum designed to introduce students to basic legal concepts and research tools. A legal intern under faculty and attorney supervision in a law office deals at first hand with the problems of clients. Attention is given to fact-investigation and legal research, preparation of motions, pleadings, trial memoranda and appellate briefs. The internship entails a minimum of 24 hours of work per week in the office and at least six hours of preparation. The offices handle criminal cases and a wide range of civil matters including consumer, administrative, family, welfare, matrimonial and civil rights cases. Enrollment is limited.

Field Work in the Human Services

The Human Services program coordinates supervised field work experience with class work. The field work involves working in an agency under professional supervision either two days a week throughout the academic year or 30 hours a week for a full semester. In addition, all students in the class meet to share experiences and learn about other agencies.

Students have been placed in probation offices, mental health facilities, family and children's agencies, hospitals, nursing homes, special needs center, welfare offices, recreational settings, etc. These experiences should strengthen the position of students when applying for a job, give them a more realistic basis for choosing a career and give their potential employers an opportunity to screen students as job candidates.

Integrated Creative Arts Teacher Education Program

This is a full-semester experience which includes five weeks of classroom instruction and training (creative work in visual arts, language arts, movement, music, and integrating art forms). Subsequent to the initial period, students will be placed in field stations for classroom experiences for the remainder of the semester. These activities will involve assisting teacher-specialists in one or more of the art form areas, and the development and implementation of programs for the specific classroom and its pupils to foster the pupils' personal expression through creation in the arts.

A weekly seminar will be held one day a week at the College for the purposes of workshop experiences and problem solving. Students are expected to be present in the schools on a full-time basis ordinarily throughout the semester. They will be visited and evaluated regularly by college faculty as well as by cooperating teacher-specialists in the schools.

Integrated Professional Program

The Integrated Professional Program in the Department of Special Education is an effort to move the preparation of special education teachers from a college-based program to educational settings in the community. In this setting students will have constant interaction among academic, observational, and participatory experiences. When a concept or technique is introduced academically, the student will have the opportunity to observe a demonstration and to engage in practice where he/she can receive guidance, immediate feedback, and further demonstrations. In addition, he will have the opportunity to raise questions based on his academic and participatory experiences and will have the opportunity to share ideas, problems, and learning with other professionals. This program is an attempt to prepare teachers to best meet the educational/social needs of non-integrated and integrated children who manifest learning/behavior problems. The program can be viewed in terms of courses and credits. Learnings will be related to real experiences and planned activities. Lectures, the use of resources, and assigned readings will be an inherent part of this program.

English Department Internship

The English Department, through its internship program, offers an opportunity for seniors and second-semester juniors to explore a profession for one full semester of work and credit. English majors can experience a wide range of professional activity in fields such as radio, television, journalism, personnel work, library functions (school, public, or technical), public relations, law, government, human services, and technical publications.

New internship positions are identified each semester. The program has provided an unusually high level of job-entry success for those participating. The internship enables students to apply theoretical knowledge and laboratory-developed skills in an actual professional setting.

Practicum in Communications/ Media

During the Spring semester of the Senior year teams composed of students from several of the options within the Communications/Media major are placed with a business, industry, health service, governmental agency, or educational institution to solve communication problems.

This experience involves working under the profession supervision of the agency as well as the Department's faculty. Since the Practicum involves a commitment for the entire semester, students should expect to spend at least 15 full-time weeks with the agency in which they are interning. In addition, a weekly seminar is held one evening a week at the College for the purpose of sharing ideas and solving problems.

Internships in Political Science

Off-campus opportunities, carrying appropriate academic credit, are available in local, state, and federal government offices and with political campaigns. Students gain an insight into the working of government administration and politics under the supervision of a political science instructor.

Internships are also available in several regional law offices for those persons interested in paralegal work. These internships prepare students for positions in law offices, public administration, and other human service work. Students normally take this legal internship in their junior or senior year. Credit is for either six or twelve semester hours depending upon arrangements with the Social Science Department.

DARE Program

Students who are enrolled in the Industrial Science Program, a part of the Industrial Technology Department, are strongly urged to enroll in the Directed Assisted Research Experiment (DARE). During the senior year, it is suggested that Industrial Science students look for a job in industry involving research. If the research projects meet the approval of the Industrial Science faculty members, the students can work while they receive college credit during the last semester of their Senior year. All research work will be supervised by Industrial Science faculty members.

MAKE-UP OF FAILING GRADES

If a student fails a course, his grade for that course is zero. It will be crossed out when the course is retaken and passed. In this manner a student may raise his/her cumulative average. A student may not retake a course in which a grade of "D" was given and have the second grade counted in his average.

THE PRESIDENT'S LIST

The President's List honors students for consistent high academic acheivement. The student is named to the President's List when he or she has achieved a semester average of 3.75 or higher for three successive semesters. However, should the student drop below 3.75 for a semester, even though the cumulative average remains 3.75 or higher based upon previous semesters' achievement, the student is ineligible for the President's List.

SCREENING POLICIES FOR STUDENT TEACHING

1. Positive recommendation of a majority of the faculty members in the area of the major and/or specialization.
2. A demonstrated effectiveness in oral and written communication as evidenced by use of currently acceptable levels of English.
3. The successful completion of the tuberculin test.
4. The Teacher Education Council requires that each candidate for student teaching possess a 2.00 cumulative index and a 2.50 index in the major field of study, as each department defines "major field." No incomplete in any course is allowed. No probationary status is allowed. No unresolved failure is permitted in a candidate's major field.
5. A student convicted of a felony as defined and identified by the courts of any state is automatically ineligible for a teacher education program.
6. All transfer students are required to take 12 S.H. from at least three different professors within their respective departments prior to student teaching.

Appeals to any of the above should be directed to the secretary of the Teacher Education Council.

NOTE: An incomplete or failure in student teaching necessitates the repetition of the course. Each student must furnish transporation to the teaching assignments.

STYLE MANUAL

The Modern Language Style Manual for writing is the official style manual for Fitchburg State College unless modified by individual departments for needs particular to their discipline.

Fitchburg State College Library
Fitchburg, Massachusetts 01420
345-2151, Ext. 138

The Library

LIBRARY HOURS

Monday thru Thursday

8:00 a.m. - 11:00 p.m.

Friday

8:00 a.m. - 5:00 p.m.

Saturday

10:00 a.m. - 5:00 p.m.

Sunday

2:30 p.m. - 9:30 p.m.

Vacation, exam period, summer schedule will be posted

TRANSCRIPTS

Transcripts are available from the Office of the Registrar and will be sent at the request of a student for a charge of one dollar.

WITHDRAWAL FROM THE COLLEGE

A student must report to the Associate Dean of Students and obtain a withdrawal form. This form must be properly completed and returned to the Office of the Associate Dean.

WITHDRAWAL FROM A COURSE

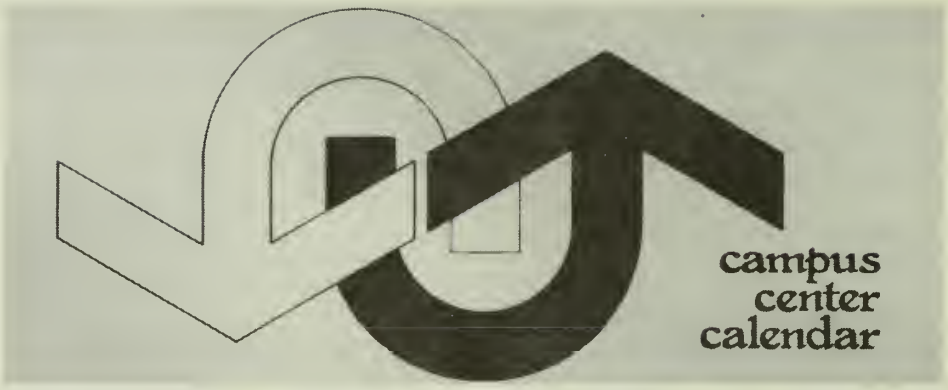
Students may withdraw from a course during the first two weeks of the semester without penalty by notifying the instructor and the Registrar, using the Add/Drop form obtainable from the Registrar's Office. Between the end of the second and the end of the twelfth week of classes, students may withdraw by obtaining the permission of the instructor and faculty advisor. Students who withdraw during this period will receive a grade of "W." Any student who fails to follow these procedures will automatically receive an "F" (grade "0") for the course. A student who withdraws from a course after the twelfth week of a semester will be assigned an "F" grade unless extenuating circumstances warrant further consideration.

ACADEMIC PROBATION AND DISMISSAL

The student's quality point ratio shall be cumulative, semester by semester.

END OF SEMESTER	YEAR	PROBATION	DISMISSAL
1	FRESHMAN	NOT APPLICABLE	NOT APPLICABLE
2	FRESHMAN	1.50 - 1.74	BELOW 1.50
3	SOPHOMORE	1.50 - 1.74	BELOW 1.50
4	SOPHOMORE	1.75 - 1.99	BELOW 1.75
5	JUNIOR	1.75 - 1.99	BELOW 1.75
6	JUNIOR	NO PROBATION	BELOW 2.00
7	SENIOR	NO PROBATION	BELOW 2.00
8	SENIOR	NO PROBATION	BELOW 2.00

Under academic dismissal a student must remain away from the College for a minimum of two semesters. He should raise his cumulative average by retaking courses which he failed thereby removing the failure from his record.



ACADEMIC SERVICES

AID PROGRAM (ALTERNATIVES FOR INDIVIDUAL DEVELOPMENT)

The AID program is designed for all students who possess the motivation and academic potential to receive a college education, but have been denied this access because of social, economic, or educational disadvantages. Paramount concerns are recruitment, education, and graduation of these students.

Another function of the program is to provide educational opportunities for those who were graduated from high school some years ago. Counseling and support groups are also available for these students.

Through the recommendation of teachers, counselors or other responsible persons, and the recruitment process, students are considered for admission. Appropriate test evaluations and interviews are utilized to determine an admissions decision.

Those students accepted in the program will receive supportive services in developmental reading, English and writing skills, mathematics, study skills and necessary tutoring in academic subjects. Also included in the program are personal and academic counseling, peer counseling, assistance in locating financial resources, and in developing the sophistication and interpersonal skills necessary to succeed in college and life.

CENTER FOR STUDY AND RESEARCH IN HUMAN DEVELOPMENT

The Center for Study and Research in Human Development, sponsored jointly by the Behavioral Science Department, Instructional Media Department, and McKay Campus School, provides on-going discussions, seminars, and investigations of the various attributes of the learner, of the learning environment and of the agents of learning (parents and teachers), as these may effect learning.

Resources of the Center for Study and Research in Human Development are available for in-service training programs, which will provide opportunity for advanced students to enroll in seminars and to participate in research and progress.

The center is located in McKay Campus School. It provides interdepartmental programs and opportunities for research in current issues in the study of human development. The center also provides a base for the Practicum in Developmental Psychology (PY 85).

COLLEGE COMPUTER CENTER

The Fitchburg State College Computer Center is a service department of the College. Facilities are provided to service the administrative, educational and research needs of the campus. The principal unit of equipment in the Center at the present time is a Control Data Computer CDC System Installation 1700 terminal which is connected to a Boston-based CDC Cyber-72 computer. There are nine interactive

terminals that are primarily for academic use by students and faculty. The terminals are of two types: CRT (Cathode Ray Terminals), terminals with no hard copy, and Printer types, those that do have hard copy for reference. These terminals are located in a pleasant setting on the third floor of the library.

Computer usage ranges from the computation of assigned classroom problems to the support of special projects of administrators and faculty. Many students begin to use the computer early in their programs of study and some continue to do so into graduate work. Opportunities to pursue courses of study oriented toward computer science are available and are described elsewhere in this catalog.

In addition to the central computing facility, the Computer Science Department has available PDP-11 and PDP-8 mini-computers for hands-on use and numerous microcomputers for laboratory use. These systems allow the student to work on design experiments which would be impossible or impractical on the large central computers.

DIVISION OF GRADUATE AND CONTINUING EDUCATION

The Division of Graduate and Continuing Education offers two graduate degree programs in keeping with its prime purpose of providing opportunities for professional and scholarly advancement to the educational personnel of central New England. This it does in the form of a Master of Education Degree which permits specialization in eleven different vocational and educational areas. It also offers the Master of Art in Teaching (M.A.T.) degree in English. Approval has been received for two Post-Master's Degree Programs. A certificate of advanced graduate study in individualized instruction and one in career/ occupational education. Graduate courses are also offered for people who do not choose to enroll in either Master's Degree Program. The Graduate Division believes that it should assist in the development of educational leadership to advance the quality of education in its geographical area.

Inquiries concerning admission procedures in the Graduate Division may be addressed to the Dean of Graduate and Continuing Education Studies.

By attending evening courses, a student may earn one of five Bachelor's Degrees offered through the Division of Graduate and Continuing Education.

The Division is in the process of extending its programs and services beyond the education profession to the business and industrial community.

FELLOWSHIP OPPORTUNITIES AND HONORS

Seniors at the College who have high academic standing are eligible to apply for a Fulbright Fellowhsip for Graduate Study Abroad or a Danforth Fellowship which supports potential college teachers in pursuing their education. The Fulbright advisor contacts eligible students during the spring semester of their junior year. Seniors are also eligible to be selected for *Who's Who Among College and University Students* and *Outstanding Young Men of America.*

The Matti N. Antila Poetry Award is an annual prize of $100.00 awarded to a junior student at Fitchburg State College for a poem. The award is made possible from Lauri and Signe Sipila in memory of Signe's parents, Matti N. and Fanny P. Antila.

A panel of five judges from the English Department will evaluate poems submitted to the Department each year no later than March 31. The poems are to be written on a subject of universal significance such as nature, and must be substantial in content and skillful in form. A length of approximately 125 words or more is required. The judges will select one poem as prize- winner to be announced no later than May 1.

INSTRUCTIONAL MEDIA DEPARTMENT

Specialized Instructional Media facilities on the campus include a full-color television studio, two media production laboratories, an autotutorial laboratory, photographic dark rooms, an audio recording studio, a curriculum library with an information retrieval system, a language and learning laboratory at the McKay Campus School, and numerous lecture and resource facilities throughout the campus. The staff of the Instructional Media Department provides consultation, instruction and production assistance in television, photography, cinematography, graphics, equipment operation and audio recording. Instructional design, mediated teaching programs, programmed instruction and multimedia design and production also represent a large part of the department's activities. Members of the college community are urged to use the Media Department's services and should visit the main office in the Conlon Fine Arts Building.

LEARNING RESOURCES CENTER

The Learning Resources Center (LRC) is located on the third floor of the Library. This new Center resulted from increasing recognition that the learning conditions required for each student may be different due to the uniqueness of individuals. The mission of the Learning Resources Center is to create conditions which allow the various mixes of human and non-human resources to focus upon individualized learning.

To implement this mission the LRC is organized as follows:

1. To acquire, store, and distribute instructional software including films, computer programs, filmstrips, audio tapes, video tapes, kits and other higher education curriculum materials;
2. To create learning spaces appropriate to independent study, small group interaction, human and non-human tutoring, and large group activities;
3. To render instructional design assistance to faculty desiring to restructure their instruction; and,
4. To institute a research and development capability enabling faculty and students to evaluate instructional strategies and materials, to sharpen teaching behavior, to investigate the teaching/learning process and to develop observation skills.

THE COLLEGE LIBRARY

The Fitchburg State College Library, located in the James J. Hammond Building, provides study table, study carrel, and lounge seating on three levels for 1,350 students. It is a comprehensive information center where source materials are available in a variety of formats. The holdings, which comprise curriculum-related subjects and general student-interest materials, include a circulating book collection of 150,000 volumes; 1729, periodical titles in microfilm and print form; abstract and indexing services; the ERIC Resources in Education collection, a comprehensive education library retrieval system on Microfiche; and a large pamphlet file. The Fitchburg State College Library also holds an 8,000 volume reference collection; card catalog access to audio-visual information in 10 formats; a children's literature collection; and a record collection of classical, folk, jazz, popular music, and the spoken word for which stereo headsets may be obtained at the Circulation Desk for the listening stations located throughout the library.

READING CENTER

Programs offered at the Reading Center are designed to meet the individual needs of all students. Enrichment programs are available for slow readers with good comprehension who want to increase their speeds. Developmental programs, concentrating on comprehension skills, help students understand what they read. Additionally, all students are taught how to adjust their rates of reading to meet their particular purposes. Students may enroll in reading courses any time and select hours convenient to them. One credit is earned upon completion of an individually designed reading program. There is no charge for these programs.

SPECIAL SKILLS CENTER

The College maintains a Special Skills Center where help is readily available for students who have difficulties in reading skills, writing, and computational areas. The special skills lab provides individualized assistance to students with needs ranging from mild to more severe exceptionalities. Special learning programs can be devised in some areas and this service is open without cost to all students in the College.

It is the policy of the Board of Trustees that students admitted to State Colleges who suffer serious deficiencies in reading, writing and mathematics be required as a condition of attendance to avail themselves of remedial courses and other help as prescribed.

The Center is located in the Learning Resource Center of the Library and is open from 9:30 a.m. to 3:30 p.m. Monday through Thursday; and from 9:30 a.m. to 12:30 p.m. on Friday.

STUDENT TEACHING ABROAD

Student teaching and academic programs overseas, Puerto Rican Student Exchange and International Science Teacher Education programs are some of the opportunities available to students in the Massachusetts State College System through the Center for International Education. Student teachers interested in enriching their cultural backgrounds may wish to apply to student teach in a fully accredited American-sponsored school overseas. The teaching period is either 8 or 16 weeks, preferably the latter, in Europe, Latin America, the Middle East, Africa, or the Far East. The Puerto Rican Student Exchange Program established by the Center and the University of Puerto Rico is open to students proficient in Spanish. An equal number of Massachusetts State College students and University of Puerto Rico students are selected for this very popular exchange program which lasts either a semester or a year.

The International Science Teacher Education Program (I-Step) is a bicultural exchange program in science, mathematics, and education for students and faculty. This international program is offered jointly by the Massachusetts State College System and the Center for Science Education, Chelsea College of the University of London, England.

Study abroad is also offered to students for either a semester or a year in England, Spain, Italy and Greece. Other opportunities for study abroad are being developed in additional countries.

Information on overseas academic programs may be obtained by contacting the Director of Professional Experiences in Edgerly Hall.

SUMMER SESSION

The Division of Graduate and Continuing Education offers two five-week Summer Sessions on the undergraduate and graduate levels, offering courses from the Freshman level through the Master's Degree. The Summer Session offers morning and evening classes, full library services, and opportunities for residence hall living. The Session features varied workshops, practicums, and outdoor environmental laboratories. For more information write to The Division of Graduate and Continuing Education.

UNDERGRADUATE EVENING SESSION

Since 1963 a program leading to the Bachelor of Science degree in Industrial Science has been available to qualified high-school graduates now in business or industry.

In cooperation with the Day Session of the College, the Evening Session also offers a series of courses in a sequential development that helps part-time students work for degrees in Liberal Arts, Business Administration or Vocational Education. Part-time students realize that in most instances they must transfer into the day session to complete the requirements of their degree. Additional information can be secured by writing the Director of the Continuing Education Division of Graduate and Continuing Education.

WRITING SKILLS CENTER

The English Department operates a *Writing Skills Center* where students may get help at any time for their writing problems. Students who have problems in English Composition classes are referred to the Center for additional help. Any instructor in the college may refer a student to the Center, and any student who desires assistance may voluntarily apply to the Center. A wide variety of programs and instructional materials are offered to students by the English Department's Writing Skills Center.

STUDENT LIFE

STUDENT GOVERNMENT ASSOCIATION

The purpose of the Student Government Association (S.G.A.) as set forth in its constitution is:

"...to encourage responsibility and cooperation in democratic self government; to form an official body for expressing the judgments of students and fostering the activities and matters of general student interest; to promote full understanding and cooperation among the students, faculty and administration in order to further the welfare of the college."

The governing body of S.G.A. is the S.G.A. Council which is made up of members elected from each class, the dormitory presidents, and the commuters' board. All students enrolled as full-time undergraduates are members of the Association by virtue of having paid the "Activity Fee." All members are eligible, and strongly encouraged, to participate in any of the committees established by the S.G.A.

As well as being the official voice of the students, S.G.A. has increasingly become service-oriented. Included in the offerings are concerts, speakers, and other acitivities offered at little or no cost to students; legal services, copy services, personal property insurance, and check cashing service.

STUDENT RIGHTS AND RESPONSIBILITIES

Fitchburg State College is presently codifying standards and procedures to provide a comprehensive student judicial system which will involve students, faculty, and administrators in the judicial process. The philosophical base for this system is that student conduct is a personal responsibility.

College regulations apply on campus and at college-sponsored affairs wherever they may take place. They include federal, state, and local laws as well as rules and regulations conducive to the attainment of the goals of the college. The following are examples of the areas covered by the regulations, although by no means an exhaustive list: academic honesty; false representation; tampering with college records; theft; vandalism or intentional destruction of college property; harassment; physical assaults; possession or consumption of alcoholic beverages or drugs in violation of college guidelines; false alarms; and possession or use of firearms.

ATHLETICS

The Athletic Association of Fitchburg State College, supported by the athletic fee, offers each student an opportunity to participate in activities at the intramural or varsity level. The College fields varsity intercollegiate teams in Cross Country, Track and Field, Tennis, Indoor Track, Soccer, Baseball, Basketball, and Ice Hockey. Women compete on the intercollegiate level in Field Hockey, Tennis, Volleyball, Basketball, Track and Field, and Softball. Fitchburg State College is a member of the Massachusetts State College Athletic Conference, the Eastern College Athletic Conference, the National Collegiate Athletic Association, Association Intercollegiate Athletics for Women, Eastern Association Intercollegiate Athletics for Women, Massachusetts Association Intercollegiate Athletics for Women, United States Women's Track Association, Northeast Field Hockey Association, United States Field Hockey Association, the Northeast Women's Intercollegiate Tennis Association, and Amateur Athletic Union, which entitles successful Fitchburg teams to participate in tournament and championship play.

An active intramural program offers the opportunity for team and individual competition to all students in baseball, softball, volleyball, basketball, bowling, tennis, and gym hockey. Coed intramural programs allow participation in volleyball, bowling, tennis and table tennis tournaments, as well as ice and roller skating. Facilities for the athletic program include a brand-new 400 meter Chem-Turf track and field complex, the soccer field, tennis courts, basketball courts, gymnasium and weight training room. Club Football is being initiated in the Fall, 1978.

CAMPUS CENTER

The Campus Center is designed, organized and administered to meet the maximum co-curricular needs of the College community as well as to foster and promote the philosophy of community spirit. Its goals are to maximize the opportunities for human development; provide educational, social, cultural and recreational experiences for the College community; and to provide convenient, economical and satisfactory services to the maximum number of the College community.

The facilities and services include: an information desk, the weekly Campus Center Calendar of activities, a craft room, student offices, meeting rooms, an art gallery, a game room, outdoor recreation equipment, personal post office boxes, vending services, lounges and the office of the Alumni Association. Programs generated from the Campus Center funds include: events, demonstrations, films, performing arts activities, travel, and visual art exhibitions.

The Program Resource Office (PRO) is another service of the Campus Center. Its student and professional staff advise and assist student organizations with programming ideas and program implementation. The Office maintains complete files and information about the multitude of program opportunities available to students and student organizations. Some of the activities which PRO has assisted with include: film series, concerts, dances, lecturers, weekend activities, Fine Arts Week, trips, exhibits, and leadership activities.

CAREER PLANNING AND PLACEMENT CENTER

The Career Center provides a variety of services for students in educational and career planning. The staff works with students to increase their self-understanding and effectiveness in making career decisions. Services of the Center include maintenance of placement credentials; advice in the preparation of resumes and letters of introduction; preparation and distribution of job information to registrants; a placement bulletin board for students and alumni; on-campus interviews between employers and students; and career planning assistance. The Center also provides counseling, guidance, and other assistance important to career planning, as well as remedial and developmental work in reading and study skills.

A job bank is maintained in which full-time, part-time, and summer job vacancies are listed to assist students and alumni in their job search. Local, state, national, and overseas openings are contained in the job bank.

Testing services and consultation are also available to students in the Career Planning and Placement Center. A vocational development test battery and a library of career information are on hand for students who wish to explore their career interests, personality and values. An extensive collection of standardized tests is also housed here. Staff members are available to assist students and other members of the College community in selecting and utilizing tests in research, diagnosis, and evaluation. Several national programs of standardized testing are administered through the College: Graduate Record Examinations; College Level Examination Program (CLEP); and Miller Analogies Test. The Center is open from 8:30 a.m. to 5:00 p.m. weekdays, and is located on the top floor of the Edgerly Building on campus. Students may make appointments by visiting the Center or by telephoning 345-2151, Extension 130.

FOOD SERVICE

Interstate United provides a variety of food service operations at Fitchburg State College, including the resident program in the Holmes Dining Commons, the Campus Center Cafeteria, and a vending program. The resident program offers a choice of fifteen (15) or twenty-one (21) meals per week which are purchased on a per-semester basis and includes special events such as holiday meals, Steak Nights, and the Old Fashioned Deli luncheon. Interstate United Corp. handles all functions on campus, everything from "Coffee-ands" to a full course banquet.

The Campus Center Cafeteria is open to the College community and serves daily breakfast and lunch, while next to it the Pub serves beer and wine. Pub activities and entertainment are provided in cooperation with the Programs Committee of the S.G.A.

FOREIGN STUDENTS

An ever-increasing number of foreign students is enrolled at Fitchburg State College. These students currently represent Nigeria, Iran, Thailand, Japan and Indonesia. The Dean of Students' Office, in cooperation with the Academic Dean, provides advice and acts as a liaison with the Immigration and Naturalization Service in matters concerning the foreign student. In addition, foreign students plan get-togethers with each other and with interested American friends to share experiences and promote cross-cultural understanding.

HEALTH SERVICES

The goal of the student health services at Fitchburg State College is to provide equitable, accessible, quality health care to the student community at a reasonable cost.

The yearly health services fee is utilized in programs of prevention, education and referral, as well as in diagnosis and treatment of illnesses. Such services include blood screening, workshops on dieting, self breast examination, and smoking, utilizing some innovative techniques and procedures in these areas.

Health care is provided through the cooperative and combined efforts of a physician, a nurse practitioner, and a medical assistant.

The Health Service provides treatment for episodic illnesses or injury, with referral to appropriate local hospitals when necessary. Arrangements can be made through the Health Service for certain types of vaccinations and innoculations.

The Health Service is open from 8:00 a.m. - 12:30 p.m. and 1:30 p.m - 5:00 p.m., Monday through Friday, and is located in Miller Hall.

HOUSING

I. Residence Halls

Three campus residence halls provide housing for more than nine hundred students while Fitchburg State College is in session. All residence halls are conveniently located within easy walking distance of classrooms, offices, and other centers of student activity on the campus. Holmes Dining Commons is situated adjacent to the residence halls, and provides meals for all residence hall students as well as many students who live off campus. Students may take their meals on either a five-day or seven-day plan.

Aubuchon Hall is an eleven-story highrise with nine living floors, each designed for forty people in double rooms. Study rooms and recreational facilities are provided on the first floor. Russell Towers, which opened in the fall of 1971, has thirty-six suites housing eleven or twelve people, arranged with a dozen suites in each of three towers. "Family Style" living is enhanced through the inclusion of a living room and kitchenette in each suite. Herlihy Hall, which was extensively renovated in 1977, is the smallest residence with only one hundred forty-two students on three floors. In addition, the College will open a new residence area in the fall of 1978, providing an additional life style choice for its students. This new complex will house students in apartment-style units. Most residence hall rooms are double rooms; the number of single rooms available is very limited. All rooms are provided with basic furnishings such as bed, dresser, desk, and chair. Students must provide their own linen, towels, face cloths, and mattress pad or cover.

The campus residences are much more than places to sleep. These living centers form a major focal point of campus activity, largely through the efforts of the hall councils and the residence staff. The hall council in each building is comprised of elected representatives of the residents and works to plan activities and promote student interests. All three residence halls also have student and full-time professional residence staff who work to assist students with their personal and administrative needs.

Residence hall space is extremely limited. Students are advised to apply for admission with housing well in advance of the application deadline date. Questions concerning campus housing should be directed to the Housing Office, Aubuchon Hall.

II. Off-Campus Housing

Over two-thirds of the students at Fitchburg State College do not live in the residence halls. A large number live in apartments and rooming-houses in the campus area. The Dean of Students' office maintains a listing of available off-campus housing and offers assistance to students who wish to share apartments with other students.

The campus area is convenient to supermarkets, laundry facilities, and shopping. Many students find the off-campus life-style attractive because it affords them the opportunity for increased independence in managing their day-to-day affairs. This "real world" experience helps to prepare them for their post-college life. Off-campus students participate in all campus activities and have their own governing body, the Commuters' Board.

Students who wish off-campus housing assistance or information should contact the Dean of Students' Office.

MUSICAL ACTIVITIES

Many opportunities exist for musical performance at Fitchburg State College. The College has a fine 60-piece Concert Band that performs music of all types, from transcriptions of classics to contemporary sounds. The Jazz-Rock Ensemble features big band jazz, rock and experimental music for stage bands. Instrumentalists may also perform in the College Brass Ensemble and Woodwind Ensemble, which offer more challenging music for these instruments. A Recorder Ensemble also specilaizes in the performance of early music.

Fitchburg State College has a choir that sings a wide variety of mixed-voice choral music and a Women's Chorus that presents music using only women's voices.

The performing organizations at Fitchburg State College have performed concerts in most of the northeastern United States and eastern Canada as well as in five European countries. Performers of all levels are welcome to participate in these exciting cultural and social organizations.

ORIENTATION

The goals of orientation at Fitchburg State College are to provide new students with sufficient and complete academic information so that they can make intelligent course selections; to acquaint them with the facilities, programs, and activities at the College; to answer preliminary questions about any and all facets of campus life; and to begin providing the students with necessary skills in academic, social, and personal areas to ensure a successful beginning to their college experience. The central focus of the program is a 2-day summer program for freshmen and transfer students; supplemented by a one-day program in early September for those unable to come to the summer program. An orientation fee is assessed all students.

Orientation consists of a series of activities designed to give the new students a broad range of information and to introduce them to campus life. Each student receives an information packet containing local maps, answers to frequently-asked questions, and information on campus activities. The students receive extensive campus tours in small groups, which afford them the opportunity to visit offices while in operation and to ask questions freely. Similarly, the students are given frequent opportunities to meet in small groups throughout the program to ask questions and share information and experiences. Representatives of major campus activities meet with students to explain their organizations and recruit members. Special-interest group meetings are held on such topics as study skills, adjustment to college, special needs of transfer students, and housing. Social, recreational, and cultural activities comprise evening entertainment. The students take their meals in Holmes Dining Commons and spend the night in a college residence hall, giving them an experience in on-campus living. Academic activities during orientation are also numerous. A battery of tests is administered to each student, including reading and mathematics placement tests, the Communications Apprehension Test, and the Cognitive Style Map. Each student attends an academic advising session with faculty from his or her department prior to the registration session.

STUDENT ACTIVITIES AND ORGANIZATIONS

Student organizations at Fitchburg State College provide the community with a wide variety of activities and programming which are designed to help the students round out their college experience. A wide variety of student organizations

afford students opportunities to find activities that meet their interests and aptitudes.

The student organization which provides most of the activities for the College is the Programs Committee. Through its various subcommittees, it provides hundreds of popular and well-attended activities each year including films, lectures, concerts, seminars, coffeehouses, pub entertainment and social activities.

There are also many types of student groups: pre-professional academic, honorary, religious, social, athletic, special interest, musical, and service groups.

A partial listing of special interest and service organizations includes the Armenian Club, Choral Arts Association, Hiking Club, Debate Club, Player's Guild, the Voluntary Action Council, the Cultural Society of Minority Students at Fitchburg State College, the Track Club, the Commuter's Board, the FSC Food Coop, and the Football Club.

The pre-professional and academic organizations and honorary groups include the Biology Club, Chemistry Association, Early Childhood Club, Elementary Education Club, Geography Club, Human Services Club, Fitchburg Industrial Arts Association, Epsilon Pi Tau, Medical Technology Club, Nursing Students Association, Political Science Club, Psychology Club, ROTC, Sociology Club, Special Education Club, Nursing Honor Society, and the Mathematical Society.

The musical organizations are the FSC Band, the Choir, the Women's Chorus, the College Brass Ensemble, Woodwind Ensemble, and the Recorder Ensemble.

Some of the social, religious, and athletic groups are the Adelphian Society, Alpha Phi Omega, Esoteric Society, Fenwick Society, Gamma Sigma Sigma, Gavaleer Society, Mohawk Club, Neasylon Society, Phi Alpha Theta Xi-Upsilon, Philodemic Society, Christian Life Community, Intervarsity Christian Fellowship, Newman Association, the Women's Coop, and the Women's Athletic Association.

Additionally, several student publications, including *THE RHETORIC,* the student newspaper, *SAXI—FRAGE*, the College yearbook, and *SCRIMSHAW,* the College literary magazine, offer a rich and varied media for written student expression.

The Athletic Department administers a full schedule of intramural and intercollegiate athletic teams of men and women. The College enjoys student organized traditional events throughout the year, including Winter Carnival and Fine Arts Week.

The College encourages participation in student organizations. Through these laboratories for expression, students can develop lifetime skills for achieving personal goals. It is hoped that by pursuing these co-curricular programs and activities that students can round out their campus experiences.

RELIGIOUS LIFE

Fitchburg State College students may participate in the services of the many churches, religious congregations and synagogues which are within walking distance of the campus as well as the Newman Center Student Parish which is adjacent to the College. Inter-Varsity Christian Fellowship at Fitchburg State College is a charter member of Fellowship which is represented on college and university campuses throughout the world. Christian Life Community also contributes to religious life at the College.

The Newman Center, although Roman Catholic in origin, provides for the needs of Catholics, other Christians, Jews and Buddhists. In addition to a chapel, the building houses offices for chaplains, a study lounge, and a recreation area with kitchen facilities. The original Center which is located next door provides a chaplain's residence and meeting rooms. The Center provides religious services, educational and cultural programs, and a meeting place for College groups of all kinds.

ADMISSIONS

ADMISSION OF STUDENTS

Fitchburg State College endeavors to offer admission to those students whose high school records and backgrounds offer promise of a successful and satisfying college experience. Each applicant is considered individually, and the decisions of the Committee on Admissions are based on many factors. Consideration is given to applicants regardless of their race, religion or national origin.

Taken into consideration are the high school record, scores on tests administered by the College Entrance Examination Board, recommendations by the high school principal or guidance counselor, and the extra-curricular and outside-of-school activities. Strong emphasis is placed on the high school record and rank in class.

Applications are accepted beginning in October. In order to be given consideration the application and all supporting credentials should be received no later than March 1.

APPLICATIONS

It is necessary that applicants to the College comply with all the following requirements:

1. Application Form. To be submitted to the Massachuetts State College System as early as possible during the senior year in high school. Applications may be obtained at high schools, Community Colleges, or State Colleges throughout the Commonwealth of Massachusetts.

2. Submission of a transcript of the complete high school record through the first marking period of the senior year. This must show a minimum of 16 units, preferably in college preparatory subjects. (All students, before entrance to college, must be graduated from high school or offer equivalent preparation.)

3. Submission of the College Entrance Examination Scholastic Aptitude Test (SAT) scores and the Student Descriptive Questionnaire (SDQ). The College welcomes the results of the College Entrance Board Achievement Test. Many candidates present Achievement Tests in English and applicants who expect to continue in a foreign language in college should take an Achievement Test in that language. Other Achievement Tests may be taken in the student's major fields of interest. Note that it is the applicant's responsibility to arrange for the forwarding of the necessary test scores directly to the College from the Educational Testing Service, in Princeton, New Jersey. The college code number is R 3518.

4. A recommendation of the applicant from his or her high school principal or guidance officer giving evidence of academic interest, ability, and preparation should be sent to the Admissions Office.

Interviews are not required and are not a part of the selection process. However, applicants who desire to have an interview or to visit the campus are invited to write the Admissions Office for an appointment. Interviews are not scheduled on Saturdays or holidays.

Fitchburg State College employs a "rolling admissions" policy. Rather than a simultaneous notification of all applicants of their acceptance, the candidates are notified on a continuing basis over a period of several months.

TRANSFER STUDENTS

A limited number of students are admitted to Fitchburg State on transfer from other colleges. Only students with satisfactory academic and personal records can be considered. Transfer into the Industrial Arts program may require attendance in the Summer Session with the student's eligibility to continue thereafter dependent upon both his achievement and available space in the shop courses. An applicant will be considered as a transfer applicant if he/she will hold more than 12 semester units (18 quarter units) of college credit by his/her planned entrance date.

The following credentials must be submitted by transfer applicants:

1. Application for Admission.

2. Transcript or transcripts of all previous college work, including a statement of honorable dismissal from the last college attended.

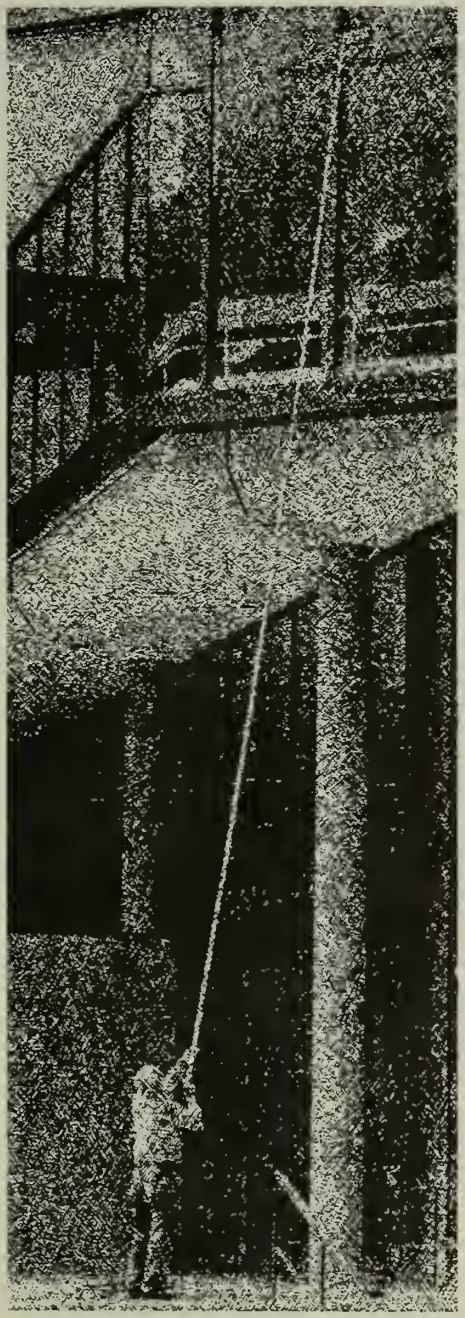
3. A catalog from the previous college(s) with the courses taken clearly marked.

Transfer credits will normally be granted for work completed in other accredited colleges which was of passing grade or better and in courses similar in content to courses offered at Fitchburg.

This evaluation is made only after an application has been processed and admissibility has been determined. (Maintenance of a "C" average does not insure transfer to a State College.)

It is the policy of the Board of Trustees that a student who has completed the general education requirements of one State College prior to transferring to another State College not be obliged to meet additional or different general education requirements of the receiving college with the exception of students transferring to the Maritime Academy.

Transfer students exempted from a three-hour Composition requirement in any accredited college or junior college may be exempt from EN 12. No credit is to be given. Students exempted from a six-hour Composition requirement will be exempt from EN 10 and 12. No credit is to be given.



In accordance with the Board of Trustees' policy the following guidelines have been established:

1. Applicants for transfer to any College in the Massachusetts State College system will be evaluated for admission on the basis of their previous college academic record.

2. Whenever possible, degree credit will be granted for course work completed at recognized institutions of higher education. Courses which do not fit the degree program may be counted as fulfilling the open elective requirements of the four-year curriculum. The transfer student will be required to fulfill the same degree requirements as any other student.

3. A student transferring from a baccalaureate level college must successfully complete at least one year as a full-time student to receive a baccalaureate degree from Fitchburg State College, which normally must be the senior year.

4. Among equally qualified and eligible transfer applicants, priority in admissions will be as follows:

    a. First priority is given to transfer students in good standing from within the State College system.

    b. Second priority is given to qualified transfer applicants from Massachusetts Community Colleges

To be given consideration, all applications should be made to the college by April 1.

COMMONWEALTH TRANSFER COMPACT

Throughout higher education in the Commonwealth of Massachusetts, an Associate Degree from any two year college signatory to the Commonwealth Transfer Compact is honored as a unit and is defined as the equivalent of 60 credit hours of undergraduate college level study including:

a. 6 hours of English - communications;
b. 9 hours of behavioral - social sciences;
c. 9 hours of humanities - fine arts;
d. 9 hours of mathematics - science; and,
e. the remaining credits to be on a college level.

Fitchburg State College honors this policy and will award, upon acceptance, the credits earned as part of the Associate Degree program. It is the policy of the Board of Trustees that a student transferring from a two-year institution is entitled to transfer for credit toward the bachelor's degree no more than the two years of credit which constitute the requirement of the Associate Degree program taken as a unit.

HOUSING

Residence Hall accommodations on campus for both men and women are available on a limited basis. Rooms are assigned for the academic year with an Occupancy Agreement required. Most rooms are arranged for double occupancy and are furnished with single beds, wardrobes, and desk and chair.

No rebate of Residence Hall charges is made once a student has occupied a room. It is emphasized that occupancy is expected for the full academic year.

All residents are required to participate in a food service plan. Rebates on food service charges are prorated on the same basis as tuition refund policy.

All bills must be paid with either cashiers checks, money orders, bank checks or travelers checks. No personal checks will be allowed.

STUDENT COST

The following list includes the essential expenses (exclusive of such items as clothing, travel, and entertainment) for which a student would budget for an academic year.

Application Fee (not refundable nor applicable to tuition) $10

Tuition ..... $500 ($250 per semester)
Tuition (out-of-state students) ..... $1320 ($660 per semester)
Registration Fee (not refundable but applicable to tuition) $50
Student Activity Fee ..... $30 ($15 per semester)
Athletic Fee ..... $38 ($19 per semester)
Books, Supplies ..... Approximately $175
Library Fee ..... $10 ($5 per semester)
Placement Fee (senior only) $5
Resident Hall Deposit (Not refundable but Applicable to second semester room charge) $50
Room and Board ..... (See item 5 below)
Educational Services Fee ..... $15 ($7.50 per semester)
Campus Center Fee ..... $30 ($15 per semester)
Health Fee ..... $15 ($7.50 per semester)
Residence Hall Damage Deposit $50
Insurance (optional) ..... Approximately $30

All fees are subject to adjustment by the Board of Trustees of State Colleges in keeping with changing costs of operations.

1. **Application Fee**
   $10 (not refundable nor applicable to tuition).

2. **Tuition**
   A. For residents of Massachusetts: $500 per year - payable in two installments of $250 at the beginning of each semester of 1978 - 1979.

   B. For non-residents: $1320 per year - payable in two installments of $660 at the beginning of each semester.

3. **Registration Fee**
   A registration Fee of $50 is required of all new students upon acceptance. It is not refundable, but is credited against the first semester tuition for students enrolling in the College.

4. **Student Activity Fee and Athletic Fee**
   All students are required to pay a Student Activity Fee of $30.00 per year ($15.00 per semester) and an Athletic Fee of $38.00 per year ($19.00 per semester). These non-refundable charges support certain extra-curricular and organizational programs on campus.

5. **Room and Board for Resident Students**
   The cost of board is $500 per academic year for the five-day plan; $532 per academic year for the seven-day plan, but the

room cost depends upon the hall to which a student is assigned. The maximum charge for room at present is $1100 annually and is payable in equal installments at the beginning of each semester.

A residence hall deposit of $50.00 is required of all students accepted for rooming in a College residence hall. This payment, not refundable, is credited against the second semester room charge.

6. **Tuition Refund Policy**
   - **A.** For new students, freshmen and transfer, there is a $50.00 non-refundable tuition deposit. Such deposit shall be credited to the student's first semester tuition charges. If such a student withdraws prior to the beginning of classes or within the first week of the beginning of classes, two-thirds of the tuition charge shall be refunded. If the student withdraws between the end of the first week and the end of the second week, one-half the tuition charge will be refunded. If the student withdraws between the end of the second week and the end of the third week, one-third of the tuition charge will be refunded. A student withdrawing after the third week of classes shall receive no refund.

   - **B.** For returning students: A student who has paid tuition prior to the opening of school and who notified the school that the student will not be attending any class will be entitled to a full refund of all tuition. If the student withdraws between the beginning of classes and the end of the first week, two-thirds of the tuition charge will be refunded. If the student withdraws between the end of the first week and the end of second week, one-half the tuition charge will be refunded. If the student withdraws between the end of the second week and the end of the third week, one-third of the tuition charge will be refunded. A student withdrawing after the third week shall not be entitled to any refund.

7. All costs listed above reflect Trustee Policy as of January 1, 1978. Costs may increase if so voted by the Board of Trustees.

Past Due Student Accounts

Any indebtedness to the College which becomes past due, immediately jeopardizes the student's enrollment, and no such student shall be permitted to graduate or register for a subsequent semester or summer school term. Further, any student who fails to pay all indebtedness to the College may not be issued diplomas, degrees, or other official statements, unless otherwise mandated by law.

Due dates are posted annually by the Chief Fiscal Officer.

VETERAN EDUCATION

Fitchburg State College is an approved institution for providing education for the veteran.

Veterans are urged to keep themselves informed about benefits available to them through the Veterans Administration. Information may be obtained from:

John F. Kennedy Federal Building
Veterans Administration -
Regional Office
U.S. Government Center
Boston, Mass. 02203

Vietnam Veterans from Massachusetts are entitled to attend Fitchburg State College on a no-tuition basis. Additional information may be obtained from:

The Commonwealth of
Massachusetts
Department of Education
31 St. James Ave.
Boston, Mass. 02116

FINANCIAL AID AND SCHOLARSHIPS

Fitchburg State College administers and coordinates a variety of financial aid programs. Students should begin application procedures well in advance of the term during which they are seeking assistance and should observe the deadline for the various programs for which they apply. Students interested in specific programs or seeking specific or updated information should consult the Financial Aid Office as early as possible for assistance in their financial aid planning in addition to filling out a Financial Aid application.

1978-79 APPLICATION PROCEDURE

File a Massachusetts Financial Aid Form with the College Scholarship Service at Princeton, New Jersey listing Fitchburg State College (Code 3518) as a recipient.

File for the Basic Educational Opportunity Grant (to do this you must check yes to item 83 on the Massachusetts Financial Aid Form and list Fitchburg State College as a recipient). In approximately 4-6 weeks you will receive the results from the Basic Grant Program which you should then submit to the Financial Aid Office for processing.

File the Fitchburg State College Application for Financial Aid with the Financial Aid Office.

File a notarized copy of your parents' or your own 1977 Federal Income Tax Return (1040, 1040A) with the Financial Aid Office. Note: The determination of which tax return should be submitted is based on your dependency/independency status. You must be able to answer no to all questions in items #13, 14, 15 of the Massachusetts Financial Aid Form in order to be considered as an independent student.

DEADLINE
MARCH 15, 1978

DEADLINE FOR TRANSFER STUDENTS
DECEMBER 1, 1978

Please note this deadline varied from the Massachusetts State Scholarship's deadline.

All Financial Aid administered at Fitchburg State College is based on need, the availability of funds, and contingent upon the student maintaining satisfactory progress in his/her course of study. The basic premise of Financial Aid programs is that the parents and the students are primarily responsible for meeting college costs. When the costs involved exceed the amount parents and/or students are reasonably able to contribute, financial need exists. The method of determining this need is the processing of The Massachusetts Financial Aid Form with College Scholarship Service.

Following are brief descriptions of the types of financial assistance available.

National Direct Student Loan

This is a federally funded program for students who meet the financial qualifications and is limited by the amount of money the college receives from the government. As a loan it must be repaid over a ten year period at the interest rate of 3% per year. Repayment begins 9 months after graduation.

Supplemental Educational Opportunity Grant

This is a federally funded program for students from low income families and is limited by the amount of money the college receives from the government. SEOG awards must be matched by an equal amount, from another approved source of Financial Aid.

Nursing Loan Program

This is a federally funded program for students who meet the financial qualifications and again is limited by the amount of money the college receives from the government. As a loan it must be repaid over a ten year period at the interest rate of 3% per year. Repayment begins 9 months after graduation. A student is eligible for cancellation benefits of up to 85% on the total repayment if he or she works at least five years, full-time at a public or private non-profit hospital upon graduation.

Nursing Scholarship Program

This is a federally funded program for students with exceptional financial need and is limited by the amount of funding the college receives from the government.

College Work-Study Program

With assistance from federal funds, students can be provided with part-time employment at the College. Eligibility is dependent upon meeting the financial qualifications and the amount of funding available.

OUTSIDE SOURCES OF AID

Basic Educational Opportunity Grant

This is a federally funded program from which students may expect to receive the results (Student Eligibility Report) in approximately 4 weeks. All Financial Aid applicants must submit the Student Eligibility Report to the Financial Aid Office. If you are eligible your award is based on the index number and the cost of education at Fitchburg State College.

Massachusetts State Scholarship Board of Higher Education

Residents of the State of Massachusetts may be eligible for grants of $300 per year while attending Fitchburg State College. These funds are awarded to students by the Commonwealth of Massachusetts.

Higher Education Loan Plan (HELP)

Students are eligible to apply to their banks for educational loans to help meet their costs of education. Interest rates are 7% per year payable after graduation if the student qualifies for a federal subsidy. For more information contact any participating bank.

SCHOLARSHIPS

Scholarships are awarded at various times throughout the year and are publicized via bulletin boards and other campus media. Deadlines and other detailed information can be obtained from the Dean of Students' Office.

The following scholarships are administered directly by the College Scholarship Committee and require that a PCS or a FAF be on file to assist in the evaluation of need.

Hammond Band Scholarship ($100.00) - Available to the full-time undergraduate student chosen as the outstanding member of the Fitchburg State College Band.

LeBlond - O'Sullivan Memorial ($100.00) - Available to full-time juniors or seniors with financial need and a record of service to the College.

Parking Scholarships ($300.00) - Made available from fines collected for illegal parking on campus to full-time students who have completed at least one semester and have at least one year remaining at the College.

Performing Artists and Athletes ($300.00) - This scholarship alternates yearly between outstanding performing artists and athletes who are full-time undergraduate students

Special Education ($100.00 to $300.00) - Available to full-time day students who are special education majors and graduates of a Massachusetts high school.

Carl T. Witherell ($300.00) - Available to full-time undergraduate students who are industrial arts majors, preferably members of Epsilon Pi Tau.

North Central Massachusetts District Board 44 - Awarded to an outstanding basketball player.

Other scholarships available to students at the College are:

Alumni Scholarships ($100.00) - Available to currently enrolled students with financial need who are in good academic standing. Apply through the Fitchburg State College Alumni Association.

Fitchburg Business and Professional Women's Club ($300.00) - Available to full-time women students commuting from Fitchburg, Ashby, Ashburnham, Lunenburg, Townsend or Westminster, who have completed one year satisfactorily.

Grace Gummo Nursing (amounts vary) - Available to deserving students in the nursing program.

Leominster Business and Professional Women's Club ($400.00) - Available to women residents of Leominster.

Student Government Association (amounts vary) - Available to sophomores, juniors, or seniors with a 2.2 cumulative average and a record of leadership. Apply to Student Government Association.

ARMY ROTC SCHOLARSHIP PROGRAM

The Army ROTC scholarship is designed to offer financial assistance to outstanding young people in the four-year Army ROTC program who are interested in the Army as a career. The ROTC Scholarship Program at WPI has approximately 12% of its cadets on full scholarship, which covers tuition, lab fees, books, and $110 per month for 10 months a year. Three, two, and one year scholarships are also available for students enrolled at WPI and taking ROTC. The four-year scholarships are normally awarded prior to the start of the student's first year.

Recipients of Army ROTC scholarships are required to serve on active duty in the Army for a period of four years, followed by a period of two years in the inactive Reserves. Scholarship recipients are expected to enter active duty immediately following graduation; unless the student has been accepted to graduate school, for which educational delays of up to two years are available.

MILITARY SCIENCE

Army Reserve Officer Training (ROTC) is offered by Fitchburg State College and is available to all male and female students. Physically qualified American citizens who complete the entire four-year program will be commissioned in the United States Army. Post graduate Army service will be satisfied by a brief three to six month period on active duty for training only followed by participation in an Army reserve component or three year active duty as a leader and manager. Delayed entry on active service for the purpose of graduate schooling is routinely granted.

Military Science is designed to complement other instruction offered by Fitchburg State. Emphasis throughout is on the development of individual leadership abilities and preparation of the student for future important leadership roles in the Army.

The Military Science Department offers several concurrent programs designed to complement the Fitchburg State Plan. There are four variations of ROTC available to the student who desires to participate:

1. The traditional 4-year program during which the student would take MS courses two terms per academic year and attend one advanced summer camp between the third and fourth years.
2. The 2-year program designed especially for transfer students from non-ROTC schools. In this case, qualified students attend a basic summer camp prior to their third year and then continue through their last two years as any other 4-year program student.
3. The third variation consists of a compressed program for students who feel they can complete their academic studies in three years. The recommended compression is to take both the first and second year military science subjects in one year other arrangements can be made. The courses themselves are those of the 4-year program.
4. The last variation includes modular training in the military or personal skills which replaces part or all of the classroom academics offered in the first two years. This type of compression can be worked out both for first and second year students.

Enrollment in ROTC produces no military obligation for the first two years. Students entering the Advanced Course (usually at the start of the third year) may incur three-year active-duty commitment as an officer in the U.S. Army, or attend 90 day Active Duty for Training.

COURSES AND PROGRAMS IN THE COLLEGE

Explanation of Course Numbers

01 - 19 First courses in given area of general education series

20 - 29 Second courses in given area of general education series

30 - 79 Elective courses

80 - 89 Professional courses

90 - 99 Independent study and honor courses

Arabic numbers at end of course descriptions represent semester hours and clock hours in that order.

Example

AR 10 Survey of Art Forms I 3 - 3

The 3 - 3 represents 3 semester hours, 3 clock hours. The term semester hours is used to designate one class or equivalent laboratory unit meeting.

ART

ASSOCIATE PROFESSORS:
Elmer Arsenault, Robert Fritz
ASSISTANT PROFESSOR:
Donna Bechis

AR 10 Survey of Art Forms I 3 - 3
A survey of significant styles in the architecture and painting of the Western World from the year 1800 to the present with emphasis upon the special nature of the visual experience. Assigned readings, lectures and visuals.

AR 12 Survey of Art Forms II 3 - 3
A study of architecture, sculpture and painting from ancient Egyptian times to the Renaissance in Europe. Emphasis is placed on understanding style in these various art forms.

AR 13 Contemporary Art 3 - 3
The course will explore the work and ideas of prominent contemporary artists, from the 1950's to the present, in the fields of sculpture, painting, drawing, design, film, etc.

AR 14 Drawing 3 - 6
A studio course which introduces students to the practice of drawing with emphasis upon the description of form through means of line, shade and perspective. Investigation of a variety of media as well as basic stylistic alternatives is encouraged.

AR 15 Life Drawing 3 - 6

The basic problems in form and anatomy are studied while drawing from the nude and costumed model. Various techniques and tools are explored including a study of some of the great masters' drawings.

AR 17 Design 3 - 3

The basic elements of design will be applied to the creation of two and three dimensional form. Studio work will explore the characteristics and effects of black and white and color, through the use of mixed media.

AR 18 American Art 3 - 3

A survey of significant stylistic developments in architecture painting and the decorative arts from the earliest colonial times to the present. Assigned readings, lecture, discussion and visuals.

AR 19 Renaissance Painting 3 - 3

The development of painting in Italy from 1250 to 1550, the age of Michelangelo. The Northern Europe Renaissance from 1400 to 1700 is also surveyed culminating in the Baroque period of Rembrandt.

AR 20 Introductory Painting 3 - 6

A study of the basic problems of form, color, and texture as understood in oil paintings. Consideration is also given to the nature and use of the oil painting materials themselves.

AR 21 Contemporary Art 3 - 3

Course will consist of active student participation in slide discussions, studio work, and museum and gallery trips. Subject matter will be based on contemporary trends in art dating from the 1960's to the present.

AR 22 Sculpture 3 - 6

Exploration and experimentation with various mediums in order to create 3 dimensional form. The student will incorporate the basic elements of design into the building of sculpture and gain an understanding of how to conceive, develop, and build form. Exploration of materials will be encouraged, as well as mastering basic techniques and media for form building.

AR 24 Advanced Sculpture 3 - 6

This studio course is a continuation of and expansion upon the basic principles of sculpture, on a more advanced level. Sculpture projects will be geared toward the individual interests and requirements of the advanced student. **AR 22 is a prerequisite.**

AR 25 Advanced Painting 3 - 6

Accent is placed on the painting of the portrait. Anatomical and formal construction is studied but consideration is also given to painterly values of color and texture.

AR 27 Pictorial Design 3 - 6

This course continues where Advanced Painting ends. Emphasis is given to figure painting, both costumed and nude model. The total figure is studied anatomically and in terms of basic forms. Continued study of color and texture problems are pursued.

AR 28 Art in Elementary Education 2 - 4

Practice of art as well as observation and discussion of the philosophy of art education in the elementary grades.

AR 80 Museum Internship 3 - 6

Offered jointly with the Fitchburg Art Museum. Emphasis on museum management and particularly the arrangement of exhibitions. Only by permission of advising art faculty.

AR 90 Independent Study in Art 3 S.H.

For selected students, upon approval of both department head and advising instructor.

BEHAVIORAL SCIENCE DEPARTMENT

CHAIRMAN: Mary Ann Hanley

The Behavioral Science Department offers major degree programs in Human Services, Psychology and Sociology. The department holds the responsibility for the operation of the Center for Study and Research in Human Development and offers interdisciplinary courses with the Education Department.

All other courses taught in the Behavioral Science Department may be found under Human Services, Psychology, or Sociology.

EP 10 Behavioral Science in Early Childhood I 4 - 5

Study of principles, patterns, and theories of human development and learning as well as principles and techniques of naturalistic and standardized child study. Observation, recording, synthesis, and interpretation of the behavior of young children will occur within a practicum setting. Case studies will be written. Re-

quired of Early Childhood majors. **Prerequisite: General Psychology or Introduction to Psychology.** Required for EP 11.

EP 11 Behavioral Science in Early Childhood II 4 - 5

Continuation of EP 10. (EP 10 and EP 11 cannot be taken simultaneously.)

BIOLOGY

CHAIRMAN: Stanley Dick
PROFESSORS: Stanley Dick, Donald Schmidt, Frank Wolf, Robert Zottoli
ASSOCIATE PROFESSORS: Neal Anderson, Frederick Davis, Rose Marie Neunherz, Alice O'Malley
ASSISTANT PROFESSORS: George Bond, Stanley Krane

The Bachelor of Arts and Bachelor of Science in Biology must include BI 20, 21, 23, 28, 40, 43 and at least twelve additional semester hours of biology electives. Two mathematics courses at or above the level of MA 12, CH 11, 12, 20, 21; and PH 11 and 12 are also required courses. The Bachelor of Arts degree requires foreign language proficiency at the second year college level.

A Bachelor of Science in Education, Secondary, in Biology must include BI 20, 21, 23, 28, 40, 43, 88 and at least twelve additional semester hours in biology electives. The program also includes two mathematics courses at or above the level of MA 12; CH 11, 12, 20, 21; PH 11, 12; PY 10, 23, 75; Ed 61, 87; IM 24.

The Bachelor of Science in Biology/Environmental Science includes all requirements of the Bachelor of Science in Biology. Additional requirements are six semester hours of earth science or geology, a course in computer science, ES 10, ES 70, and three semester hours of electives in Environmental Science. The major requires that EC 10, Environmental Law, and Urban Planning be used to fulfill the social science requirement and PL 10, EN 78, and a photography or drawing course be used to fulfill the humanities requirements in General Education.

BI 10 Introduction to Life Science I 3 - 4

The course focuses on the history, philosophy and content of biology as a science. Laboratory work includes experiences that emphasize problem solving by the student. Primarily for the non-major. 2 hrs. lecture, one 2-hr. lab per week. Offered: Fall semester.

BI 11 Introduction to Life Science II 3 - 4

Continuation of BI 10. 2 hrs. lecture, one 2-hr. lab per week. Offered: Spring semester. **Prerequisite: BI 10 or permission of Instructor.**

BI 12 Anatomy and Physiology I 3 - 4

Structure and function of the human organism on the cellular, tissue, organ, and system levels. The laboratory emphasizes both physiology and the dissection of preserved mammalian specimens. 2 hrs. lecture, 2 hrs. lab per week. Offered: Fall semester.

BI 13 Anatomy and Physiology II 3 - 4

A continuation of BI 12. 2 hrs. lecture, 2 hrs. lab per week. Offered: Spring semester. **Prerequisite: BI 12.**

BI 15 Seminar in Modern Biology 1 - 1

Discussion of current topics in basic and applied biological research based on readings of original scientific reports. Each student is expected to prepare one brief presentation on a topic of her choice. Strongly recommended for all freshman or sophomore biology majors.

BI 20 General Zoology 3 - 4

Investigation of the different types of animals in freshwater pond, freshwater stream, bog, and marine rocky intertidal communities. Students will be responsible for preparing a laboratory report on each habitat and the anatomy and behavior of a representative sample of its organisms. Biological principles and major contribution of each major animal phylum. 1 hr. lecture, 3 hrs. lab/field trips per week.

BI 21 General Botany 3 - 4

The structure, physiology and life cycles of the algae, fungi, bryophytes, ferns, gymnosperms, and angiosperms. Relationship of plant biology to agriculture and medicine are also discussed. Laboratory involves study of live and preserved plant materials, simple physiological experiments and plant growth project. 2 hrs. lecture, 2 hrs. lab per week.

BI 22 Plant Physiology 3 - 4

Individually paced integration of plant structure and function emphasizing physiology of the integrated plant: water relations; transpiration and translocation, mineral nutrition, photosynthesis, respiration, growth hormones, differentiation and morphogenesis. 2 hrs. of conference, 2 hrs. lab per week, plus additional hours. Offered: Fall semester (alternate years). **Prerequisites: BI 21 and General Chemistry.**

BI 23 Introductory Ecology 3 - 4

Survey of major ecological concepts and methodology as a basis for further investigations of the dynamic relationship between organisms and their environment. Field and laboratory work emphasize problem identification, formulation of hypothesis, data collection, and analysis and interpretation of results in terms of their biological implications. 2 hrs. lecture, 2 hrs. lab/field trips per week. Offered: Fall semester. **Prerequisite: BI 10 or 20 or 21 or permission of Instructor.**

BI 24 Advanced Ecology 3 - 4

Quantitative-study of morphological, physiological and behavioral ecology; population relationships; productivity; energetics of community structure. Special attention given to graphical and statistical analysis of results and to computer simulation of ecosystems. 2 hrs. lecture, 2 hrs. lab/field trips per week, plus some additional hours. Offered: Spring semester. **Prerequisite: BI 23 or permission of Instructor.**

BI 25 Laboratory Techniques in Biology 3 - 4

Experiments and demonstrations to provide familiarity with procedures and activities performed in school and college laboratories as well as in clinical laboratories. Techniques used in hematology, bacteriology, botany, histology, mycology, and cytology with emphasis on the careful preparation of various types of microscope slides. 4 hrs. lab per week. **Prerequisites: BI 20 and BI 21 or permission of Instructor.**

BI 26 Conservation of Natural Resources 3 - 3

An introductory exposure to applied ecology, primarily for non-majors, intended to develop a disciplined sensitivity to human environmental interactions. Individual projects will require the identification of specific conservation problems in local communities, their sources, and proposals of practical means for their solution. 3 hrs. lecture/lab per week. Offered: Fall semester.

BI 27 Survey of Micro-organisms 3 - 4

Introduction to the biology of major groups of microorganisms: bacteria, viruses, protozoa and fungi, their role in nature and their relationship to man as agents of infectious diseases. Laboratory emphasizes principles and practices of aseptic techniques and diagnostic identification and culture of disease entities. 2 hrs. lecture, 2 hrs. lab per week, plus some additional time. Offered: Spring semester. **Prerequisites: BI 13 and General Chemistry or permission of Instructor.**

BI 28 Genetics 3 - 4

Basic principles of biological information processing: Mendelian inheritance; sex determination; chromosome cytogenetics; linkage, recombination and genetic mapping; mutagenesis; molecular genetics and gene-enzyme relationships; population genetics and quantitative inheritance. Laboratory work includes study of mutational effects and analysis of crosses in maize. Drosophila, bacteria, viruses and man. 2 hrs. lecture, 2 hrs. lab per week, plus some independent project work. **Prerequisite: BI 20 or BI 21.**

BI 29 Marine Biology 3 - 4

Investigation of the distribution of the dominant animals and plants in a salt marsh, sand beach, tide pool, and rocky intertidal area. Data on physical and chemical factors of these habitats will be correlated with the composition, behavior and physiology of the flora and fauna of each habitat. 4 hrs. of lecture/lab/field work per week, plus some additional hours. Offered: Fall semester (alternate years). **Prerequisites: BI 20, BI 21 and BI 23.**

BI 30 Parasitology 3 - 4

The morphology and diagnostic identification of representative groups of parasitic protozoa, helminths and arthropods, and their functional life-cycle and pathogenic relationships to animal and human hosts. Epidemiology, pathology and control and treatment of important parasitic diseases. 2 hrs. lecture, 2 hrs. lab per week. Offered: Spring semester (alternate years). **Prerequisites: BI 20 and BI 44.**

BI 31 Ornithology 3 - 4

An inquiry into the life of birds. Emphasis on correlation of structure, function and behavior. Laboratory studies of external characters, anatomy and criteria for identification. Optional field trips. 2 hrs. lecture, 2 hrs. lab per week. Offered: Spring semester (alternate years). **Prerequisite: BI 11 or BI 20 or permission of Instructor.**

BI 32 History of Biology 3 - 4

A thorough study of the origins, development and present status of the life sciences and medicine with special emphasis on fundamental biological concepts and theo-

ries, their philosophical background and evolutionary development. 2 hrs. lecture, 1 hr. discussion. **Prerequisite: BI 11 or equivalent.**

BI 33 Entomology 3 - 4

Anatomy, habits, life histories and identification of insects and some related arthropods. Laboratory work includes preparation of a representative collection of adult and larval forms from terrestrial and aquatic environments with emphasis on techniques for identification of these forms. 4 hrs. lecture/laboratory, plus additional hours for field trips and identification. Offered: Fall semester (alternate years). **Prerequisite: BI 20 or permission of Instructor.**

BI 34 Limnology 3 - 4

A study of fresh waters and their inhabitants: survey of protists, invertebrates, vertebrates and plants collected from local waters and their ecological interrelationships as determined by biological, physical and chemical parameters. 1 hr. lecture, 3 hrs. lab/field trips per week. Offered: Fall semester (alternate years). **Prerequisites: BI 21 and BI 23 or permission of Instructor.**

BI 35 Plant Taxonomy 3 - 5

Classification of higher plants in accordance with evolutionary principles and trends. Laboratory is devoted to the techniques of plant identification with emphasis on the terminology and use of botanical keys. Field trips for collecting representative elements of the local flora and preparation of an herbarium. 1 hr. lecture, 4 hrs. lab per week, plus some independent project work. Offered: Fall semester (alternate years). **Prerequisite: BI 21 or permission of Instructor.**

BI 36 Biology of Algae 3 - 4

Collection and identification of common algae found in the New England area. Emphasis on freshwater forms, but some study of marine algae as well. Distribution of algal species will be correlated with physical and chemical factors in their habitats. Laboratory will include study of algal physiology and reproduction as well as techniques for cultivation. 1 hr. lecture, 3 hrs. lab/field trips per week.

BI 39 Tropical Marine Biology

A course designed to acquaint students with a variety of tropical marine habitats. Students will be involved in small individual or group projects at a location in the Caribbean for approximately two weeks during the winter intersession. They will be expected to read selected articles during the semester prior to the trip, and on completion, a comprehensive report on the results of their investigation will be required of each individual or group. In addition, each student is responsible for their travel, room and board expenses for the trip. Offered: Spring semester (including the winter intersession). **Prerequisites: Permission of Instructors.**

BI 40 Developmental Biology 3 - 4

A detailed description of developing embryos from the fertilized egg through the various stages leading to the adult organism. Current theories regarding the molecular mechanisms underlying cell differentiation and other classic developmental processes is also a major theme of this course. Other topics include regeneration, metamorphosis and cancer. Laboratory involves study of development in live sea urchins, chicks, frogs and ferns as well as work with prepared slides. 2 hrs. lab per week. Offered: Spring semester. **Prerequisites: BI 20, BI 21, BI 28, BI 43 and Organic Chemistry or permission of Instructor.**

BI 41 Biochemistry 3 - 5 to 7

Individually paced, mastery-oriented introduction to the chemistry of biologically important molecules and their metabolism and regulation; water, proteins lipids, carbohydrates, nucleic acids and their components. Laboratory emphasizes manual and instrumentated techniques for isolation, qualitative and quantitative analysis of macromolecules and the kinetics and induction of enzymes. 2-4 hrs. conference, 3 hrs. lab per week. Offered: Spring semester. **Prerequisite: at least one semester of Organic Chemistry.**

BI 42 Human Biology 3 - 4

Anatomy and physiology of the cells, tissues, organs and organ systems of the human organism and their functional interrelationships. (Intended primarily for juniors and seniors who are majoring in Biology or Medical Technology). 4 hrs. of lecture/lab/demonstrations. **Prerequisites: BI 20 and at least one semester of Organic Chemistry; BI 43 is strongly recommended.**

BI 43 Cell Biology 3 - 4

Cell and subcellular structure and function. Membranes, cell organelles, bioenergetics, photosynthesis, DNA and RNA structure, function and replication, protein synthesis and gene regulation are the major areas considered. Laboratory includes absorption spectrophotometry, cell fractionation, organelle isolation, DNA isolation and denaturation. 2 hrs. lecture, 2 hrs. lab per week. Offered: Fall semester. **Prerequisites: BI 20, BI 21, BI 28 and Organic Chemistry.**

BI 44 General Microbiology 3 - 4

Structure, nutrition and growth of bacteria; characterization of representative bacteria, fungi, viruses and protozoa and their genetic and metabolic peculiarities. Immunological techniques and the immune response in man. Laboratory work includes aseptic technique, isolation and cultivation of microbes, staining techniques and diagnostic metabolic reactions. 2 hrs. lecture, 2 hrs. lab per week, plus additional time. Offered: Fall semester. **Prerequisite: Organic Chemistry or permission of Instructor.**

BI 45 Medical Microbiology 2 - 4

General principles of infection and immunity, disease etiology, laboratory diagnosis of specific pathogens, and the epidemiology of microbial diseases as illustrated primarily by bacterial pathogens. 2 hrs. lecture and 4 hrs. lab per week during first half of semester. Offered: Spring semester. **Prerequisite: BI 44.**

BI 46 Microbial Ecology 2 - 4

Study of microbial environments, populations and ecosystems. Mutual interactions of microbes as well as interactions with macroorganisms and the effects of the microbe on macroecology. 2 hrs. lecture and 4 hrs. lab per week during second half of semester. Offered: Spring semester. **Prerequisite: BI 44.**

BI 47 Environmental Health 3 - 3

Investigations into that aspect of public health that concerns itself with forms of life, chemical substances, environmental conditions and other forces in the surfoundings of man that exert an influence on his health and well-being. 3 hrs. of lecture discussion and occasional field trips. Offered: Fall semester. **Prerequisite: BI11 or equivalent or permission of Instructor.**

BI 50 Social Biology 3 - 3

An exploration of the biological and cultural evolution of man and how that evolution has developed or caused specific societal problems. A study of the biological explanations for and possible solutions of these problems. 3 hrs. of discussion per week, 1 hr. independent study. **Prerequisite: 6 s.h. introductory biology or equivalent.**

BI 56 Ichthyology 3 - 4

The study of the classification, ecology and physiology of the fish common to Massachusetts. Both marine and freshwater species will be covered, with field collecting trips planned. Class time will be divided between lecture and laboratory work. Offered: Fall semester (alternate years). **Prerequisite: BI 20 and BI 23, or permission of instructor.**

BI 88 Biology Teaching Methods 3 - 3

Methods and philosophical background for teaching of modern biological science. (This course is a prerequisite for student teaching and should be taken the semester prior to student teaching: consult p. for other requirements for student teaching.) 1 hr. public school assisting, 1 hr. discussion, 1 hr. independent study per week. Offered: Fall semester. **Prerequisites: junior or senior standing, ED 61, PY 23 and permission of Instructor.**

BI 90 Independent Study 1 to 3 credits

Laboratory or other independent research under the guidance and supervision of one or more faculty members. A comprehensive term paper is required for successful completion of the project. Offered: Fall and Spring semesters. **Prerequisites: junior or senior standing, 15 credits of biology and special permission of the departmental curriculum committee.**

BUSINESS ADMINISTRATION

CHAIRMAN AND ASSOCIATE PROFESSOR: George Murphy
INSTRUCTOR: Harold Schonbeck

The Business Administration program at Fitchburg State College is unique in that it is an upper level, transfer program. It is expected that students enrolling in the program will have completed the courses in the core curriculum at a Massachusetts Community College or at another two or four year institution. Students may concentrate their studies in either accounting or management.

Core Curriculum: Principles of Accounting I and II, Business Law I, Basic Finance, Practice or Management, Fundamentals of Marketing.* Accounting Curriculum: Economics I and II, Statistics I and II, Introduction to Computers for Business, Intermediate Accounting I and II, Business Law, Cost or Managerial Accounting, Tax Accounting, Auditing, Advanced Accounting I and II, Financial Management of Corporations. Management Curriculum: Economics I and II, Statistics I and II, Introduction to Computers for Business, Production Management, Personnel Management, Industrial Psychology, Business Fluctuations and Forecasting, Organizational Behavior and Theory, Social and Political Environment of Business, Business Policy and Strategy and 6 semester hours of Business Electives.

* These courses should be taken during the first two years of college prior to entering the Fitchburg State Business Administration program.

BA 12 Intermediate Accounting I 3 - 3

In this course emphasis is placed on the application of accounting theory to practice problems in order to develop financial statements of proper form and content. The relationship between various financial statements is constantly reaffirmed. Asset items of the balance sheet are treated comprehensively. **Prerequisite: Accounting II.**

BA 13 Intermediate Accounting II 3 - 3

Liabilities, reserves, funds and stockholders' equity items are thoroughly treated. Presentation is made of the analysis of financial statements through the use of the ratio method and the consequent critical appraisal attendant upon this method of analysis is stressed. **Prerequisite: BA 12.**

BA 14 Advanced Accounting I 3 - 3

This course includes accounting problems involved in the preparation of consolidated financial statements and in home and branch office relationships, mergers and pooling problems are stressed. Special problems in fund and budgetary accounting for government entities and hospitals are covered. **Prerequisite: BA 13.**

BA 15 Advanced Accounting II 3 - 3

The purpose of this course is to develop in the student the ability to solve a variety of complex problems in order to prepare him for either public professional examinations or executive accounting work in private business. **Prerequisite: BA 14.**

BA 16 Cost Accounting 3 - 3

The control aspects of material, labor, and overhead accounting are stressed. The course covers such areas as job and process costs, standard costs, direct costing, marketing costs, costs in decision-making, capital budgeting and profit planning. **Prerequisite: Accounting II.**

BA 17 Managerial Accounting 3 - 3

This course stresses the usefulness of accounting data as it relates to the managerial decision-making process. Computer applications are integrated with the broad objectives relative to planning, control, and analysis. Among the multi-faceted areas of study are financial statement analysis, budgeting, standard cost analysis, and capital expenditure planning and control. **Prerequisite: Accounting II.**

BA 18 Tax Accounting 3 - 3

This course considers the Massachusetts and Federal Income Tax Laws, with application to individuals, partnerships, fiduciaries, and corporations. **Prerequisites: Accounting II or permission of the Instructor.**

BA 19 Auditing 3 - 3

The basic concepts of auditing and control are examined in this course. It emphasizes internal control, audit problems, and professional responsiblities of the C.P.A. to the auditing requirements. **Prerequisite: AC 22.**

BA 30 Principles of Management 3 - 3

This course is an introduction into the history and development of modern management philosophy. The course will discuss the principles and techniques of business as they relate to the planning, organizing, directing, and controlling of business enterprises.

BA 31 Production Management 3 - 3

The basic principles of production management related to the effective utilization of the factors of production in manufacturing and non-manufacturing activites for both intermittent and continuous systems are discussed. The course will also study production organizations, analytical models and methods, facilities design, and the design of control systems for production operations.

BA 32 Personnel Management 3 - 3

This course surveys techniques of modern personnel management from both the manager and personnel manager's point of view. The course will include such topics as recruitment, selection, interviews, evaluation and development, leadership and supervision, management and labor relations, wage and salary administration.

BA 33 Business Fluctuations and Forecasting 3 - 3

This course is an analysis of the operations of our free enterprise system with emphasis on the factors responsible for economic instability; analysis of public and business policies which are necessary as a result of business fluctuations.

BA 34 Organizational Behavior and Theory 3 - 3

This course is a general descriptive and analytical study of organizations from the behavioral science point of view. It includes problems of motivation, leadership, morale, social structure, group networks, communications, hierarchy, and control in complex organizations. The interaction between technology and human behavior is discussed. Consideration to alternative theoretical models is given. **Prerequisite: PY 10.**

BA 35 Social and Political Environment of Business 3 - 3

This course is a study of the evolution of American business in the context of its changing political and social environment. Analysis of the origins of the American business creed, the concept of social responsibility of business, and the expanding role of the corporation are included.

BA 36 Business Policy and Strategy 3 - 3

This is an integrating course embracing all organic management functions. Cases are used as subjects for analysis and systematic decision making practice.
Prerequisites: BA 31, 32, 33 or the permission of Instructor.

BA 61 Financial Management of Corporations 3 - 3

This course covers the analysis and management of the flow of funds through an enterprise. Cash management, source, and application of funds, term loans, types and sources of long term capital. Capital budgeting, cost of capital, and financial structure. It is an introduction to capital markets.
Prerequisite: Basic Finance.

BA 70 Business Law 3 - 3

This course is a continuation of Introduction to Business Law and deals with the law of agency, commercial, paper, credit, and the various forms of business.

CHEMISTRY

CHAIRMAN: John McNaney
PROFESSORS: George Condike, John McNaney, Michael Vignale
ASSISTANT PROFESSORS: Daniel Robinson, Robert Strong
INSTRUCTOR: Mary Svenson

The degree of Bachelor of Arts in Chemistry must include CH 11, 12, 20, 21, 30, 32, 33, 35; PH 13, 14; MA 23, 24 and at least three semester hours of Chemistry electives at or above CH 36. PH 15 is recommended for all Chemistry Majors and proficiency in German at the second year level is required for the Bachelor of Arts.

The Bachelor of Science in Chemistry must include CH 11, 12, 20, 21, 30, 32, 33, 35; CS 15, 16; PH 13, 14; MA 23, 24 and at least 3 semester hours of electives in Chemistry at or above CH 36. PH 15 is recommended.

The degree of Bachelor of Science in Education, Secondary, Chemistry, must include CH 11, 12, 20, 21, 30, 32, 35, 88; PH 13, 14; MA 23, 24; PY 10, 23, 75; ED 61, 87, and IM 24. PH 15 is recommended for Chemistry Majors.

CH 11 General Chemistry I 4 - 5

The fundamental laws and theories of chemistry such as atomic structure, the periodic table, electrochemistry, descriptive inorganic chemistry, the gas laws, solutions, and chemical binding. Chemical calculations are emphasized.

CH 12 General Chemistry II 4 - 5

Continuation of (and prerequisite): CH 11 or the equivalent.

CH 13 Chemistry I 3 - 4

Fundamentals of chemistry for non-science majors. This course is largely limited to inorganic concepts.

CH 14 Chemistry II 3 - 4

Continuation of (and prerequisite): CH 13 or the equivalent. It also involves a study of organic chemistry.

CH 20, 21 Organic Chemistry I and II 4 - 6 each

Properties of organic compounds are discussed in terms of their molecular structures and reaction mechanisms. Recommended for chemistry majors, and/or others contemplating graduate study and

for those who feel the need for a solid theoretical foundation. **Prerequisites for CH 20: CH 11 and 12.**

CH 24, 25 Introduction to Organic Chemistry I and II 4 - 5 each

A survey of the major classes of organic compounds -- their chemical and physical properties. Reduced emphasis on theoretical foundations permits inclusion of topics in natural products, chemistry and bio-organic application. **Prerequisites: CH 11 and 12.**

CH 30 Quantitative Analysis 4 - 6

Emphasis on theory and application of Quantitative Analysis. The lectures stress chemical equilibrium, solubility product, complexometric formation, oxidation-reduction, and stoichiometric calculations. **Prerequisites: CH 11 and 12 or the equivalent.**

CH 32 Physical Chemistry I 4 - 5

The underlying principles of chemistry from a physical chemistry standpoint. Kinetic theory, theories of the structure of matter, theory of electrolytic solutions, electrochemistry, thermodynamics, kinetics. **Prerequisite: CH 30 or the equivalent.**

CH 33 Physical Chemistry II 4 - 5

Continuation of (and prerequisite): CH 32.

CH 35 Instrumental Analysis 3 - 5

Essentially a laboratory course in instrumental Analysis including one hour lecture per week. Laboratory experiments include spectrophotometric, conductometric, potentiometric, and chromatographic analysis. **Prerequisite: CH 30 or the equivalent.**

CH 88 Chemistry Methods 3 - 3

Methods of teaching chemistry at the secondary level. Includes a survey of modern secondary science curriculum. Required of all Chemistry education majors. **Prerequisite: IM 24.**

SPECIAL TOPICS

Student and faculty availability determine the time of the following course offerings (not offered every year).

CH 36 Advanced Inorganic Chemistry 3 - 3

Valancy theories, acid-base theories, reactions in non-aqueous solvents, complexation and chelation, physical measurements. **Prerequisite: CH 32 or the equivalent.**

CH 40 Natural Products Chemistry 3 - 6

Isolation, purification, and identification of pure compounds from a variety of naturally occurring substances. Special techniques will be introduced whenever feasible. Six hours of laboratory. **Prerequisites: CH 20 and 21.**

CH 41 Polymer Chemistry 3 - 6

An introduction to the synthesis and properties of macromolecules which also serves as an application of chemical principles to this interesting and important group of materials. Two hours of lecture and one four-hour laboratory period. **Prerequisites: CH 20 and 21 or the equivalent.**

CH 43 Radiation Chemistry 3 - 3

Fundamentals of radiation chemistry, including radioactivity, atomic nuclei, nuclear reactions, activation analysis, reactors, and radiation detection and measurement with emphasis on the use of radioactive materials in chemical applications. **Prerequisites: CH 30, PH 14.**

CH 90 Independent Study in Chemistry 1 to 3 S.H.

Laboratory research under guidance of the Chemistry staff. **Prerequisite: Permission of the Instructor.**

COMMUNICATIONS/MEDIA

CHAIRMAN: Lee DeNike
PROFESSORS: Lee DeNike, David Ryder
ASSOCIATE PROFESSORS: William Bowers.
ASSISTANT PROFESSORS: Teresa Carsten, John Magnasco, John Meaney
INSTRUCTORS: Peter Laytin, Wilfred Thibeault

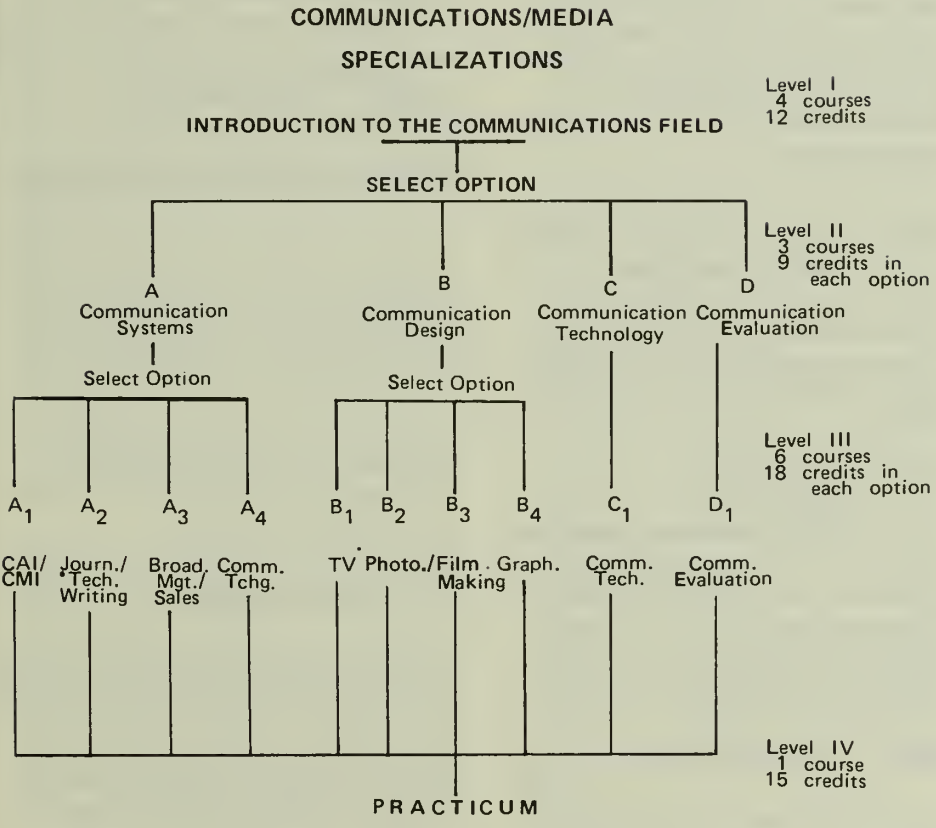
"We develop ways of thinking, knowing, and relating to each other largely through the symbols we share. Our agreements, disagreements, and even conflicts are mediated through communications. Creating, sharing, and using symbols and statements is the "humanizing" process of man. A change in that process alters the nature of human affairs."

George Gerbner, Dean
The Annenberg School of Communications,
University of Pennsylvania

The goal of the Communications/Media program is to offer a scholarly and systematic approach to the understanding of the communication process, and to the acquisition of the skills and knowledges requisite for the effective design, production and

evaluation of communicative media. This is provided through coupling a well-rounded education in the social sciences, humanities and sciences with an intense study of the professional behaviors, systems and technologies inherent to a specialization within the communications field. In essence, the program is a unique blend of theory and practice which is transmitted via an innovative, customized form of instruction.

The specializations currently offered evolve as follows:



The degree of Bachelor of Science in Communications/Media must include 54 semester hours drawn from the four levels within the degree program..

The four required courses that compose Level I are CM 10, CM 11, CM 12, and CM 13. At Level II, students are to complete three courses taken with the consent of his/her advisor.

Level III currently has six developed options: A1, A2, B1, B2, B3, and B4. Option A1 prepares students for careers where the computer is used to provide and manage instruction; A2 for technical writing, B1 for television production and directing; B2 for aesthetic, biomedical and environmental photography; B3 for documentary film making; and B4 for graphic design. Selection of an option and the six courses necessary to complete the option is done with the consent of the student's advisor.

A 15 semester hour practicum, Level IV, is required of all degree candidates.

Courses Designed for Non-Communication/ Media Majors

CM 01 Audiovisual Equipment Operation 1 - 1

This course will focus on the knowledge and skills necessary to operate audiovisual equipment.

CM 02 Design, Preparation and Production of Instructional Materials 3 - 3

This course will provide students with practical experience in visual communication. Students will become involved in a variety of media activitites including

the design, preparation, production and evaluation of graphic, photographic and other types of visual and aural materials.

CM 03 Amateur Photography 3 - 3

This course deals with the fundamentals of photography. A minimum emphasis is placed on darkroom techniques. Students are responsible for all paper and film supplies.

Level I

CM 10 Introduction to Languages of Communication 3 - 3

Examination and experimentation with organized sets of symbols that constitute a language or code using tools and concepts evolved in the study of English. The language/codes studied will include computer programming, languages, visual languages, and non-verbal interpersonal langauge.

CM 11 Introduction to Technology of Communication 3 - 3

A focus on equipment operation and simple maintenance procedures in the areas of audio/visual equipment, photography, film and television.

CM 12 Introduction to Message Design 3 - 3

An overview of visual communications. Students will become involved with a variety of media activities providing experiences in the design, conversion, interpretation and evaluation of graphics, film, television and photography.

CM 13 Introduction to Communications Systems 3 - 3

A study of the various media as specific communications systems. Included will be an examination of film, radio, television, photography, graphics and other media along with their respective contact.

Level II

CM 20 Human Context of Communications Technology 3 - 3

A study of the human relations problems associated with the introduction of communication technology into business organizations, schools, and other public and private agencies. Students will develop skills in shaping their communications with people who may have different attitudes toward a particular technology. The courses will attempt to develop alternative explanations or translations of given technological characteristics into the framework and values of hypothetical and actual clients.

CM 21 Learning, Teaching and Instructional Communications 3 - 3

An examination of selected learning theories, an overview of various instructional approaches or methods, and the application of the two to instructional communications.

CM 22 Organizational Communication 3 - 3

An examination of the organizational and management procedures used as vehicles for communication within business and educational institutions. Such things as budgetary skills, equipment specification, and selection of communications media hardware will be studied.

CM 23 Communications Law 3 - 3

A study of statutes and regulations governing press, broadcasting, and films; comparative analysis of defamation, contempt, privacy, copyright; discussion of ethics and practice in mass media and business; history of the principles of the laws governing the mass media.

CM 24 Principles and Techniques of Color 3 - 3

An introduction to the study of color as it affects graphic design. Emphasis will be given to the principles and psychology of color as it relates to color trends and consumer preferences in sales promotion, packaging and industrial products. Students will study and design color strategies for specific consumer products.

Level III

CM 30 Introduction to Mini-Computers 3 - 3

Students put an example mini-computer system together and learn how to take care of the system. The system is used in a variety of applications such as an aid to instruction, an aid to letter writing and a game simulator. Emphasis is on hands-on applications using non-technical terms. No previous experience with computers is assumed.

CM 31 Mini-Programming I 3 - 3

An introduction to BASIC programming using fundamental instructions to program the computer. Programs emphasize uses of a card reader, tape and disc storage, controlling a printer and controlling the screen of a video-terminal. Knowledge of CM 30 is assumed but no previous

programming experience is required.

CM 32 Mini-Programming II 3 - 3

Programming in CAI, CMI and communications are featured. SORTS statements, MATRIX statements and EMULATION utilities are applied to data processing, instructional design and monitoring, and to a mini-computer as an intelligent terminal. Knowledge of CM 30 and CM 31 is assumed.

CM 33 Computer Assisted Instruction 3 - 3

An introductory course in instructional design with computer support. Graphic Design, Technical Writing, Television Production and other Communications/Media resources are combined, through computer support, to integrate Communications/Media in preparing a multi-media instructional module. Each student prepares a module for either an industrial or educational environment. Knowledge of CM 30 and CM 80 is assumed.

CM 34 Computer Assisted Instruction II 3 - 3

A continuation of CM 33. Students use media skills, computer assisted instruction and computer managed instruction to prepare a complete course for an industrial or educational environment. Knowledge of CM 30, CM 31 and CM 33 is assumed.

CM 35 Monitoring and Managing Instruction Via Computer 3 - 3

The course prepared in CM 34 is presented, monitored and revised as needed. The combination of CM 33, CM 34 and CM 35 is a preparatory sequence for the Practicum, CM 92; Cm 34 is a prerequisite for CM 35. Knowledge of CM 32 is assumed.

CM 40 Newswriting and Reporting for Industrial Publication I 3 - 3

Fundamentals of news gathering, news evaluation, and structure of news story for the trade and technical journal; writing for instructional manuals; product announcements and critiques.

CM 41 Newswriting and Reporting for Industrial Publication II 3 - 3

A continuation of the development of the writing skills and reporting processes as examined in CM 40.

CM 42 Feature and Magazine Writing for the Technical Journal 3 - 3

Writing feature articles for the technical journal, study of markets open to freelance writers; analysis of current publications but subject matter primarily students' own work with emphasis on rewriting. **Prerequisites: CM 40, CM 41.**

CM 43 Copy Editing 3 - 3

Principles and laboratory practice in editing news copy, writing headlines, evaluating news, selection of news and feature photographs, caption writing, front page and inside page makeup. **Prerequisites: CM 40, CM 41.**

CM 44 Photojournalism 3 - 3

Visual communication of information keyed to picture series and picture stories with primary emphasis on utilization within industry-oriented market. **Prerequisites: CM 60 and permission of Instructor.**

CM 45 Writing and Editing for Public Communication 3 - 3

Emphasis on fundamentals of writing for public communication; analysis of variables, viz., readability, color clarity, organization of material, flow, crispness. Customary forms used in the field including news releases, features, profiles, articles, editorials, manual copy. Further examination of institutional editor as creative interpreter of messages to numerous publics inside and outside the organization. **Prerequisites: CM 40, CM 41.**

CM 46 Principles and Practices of Public Relations 3 - 3

Treatment of definitions and concepts, history, potential careers, research methods. Focus on role of managed communications in public relations problems unique to industry, human services and education institutions.

CM 50 Television Production I 3 - 3
An examination of the production techniques used in television, utilizing both portable and fixed studio equipment. **Prerequisites: CM 80 - CM 12, and permission of Instructor.**

CM 51 Television Production II 3 - 3
Advanced production techniques including lighting, set design, staging concepts and studio operation. **Prerequisite: CM 50 and permission of Instructor.**

CM 52 Instructional Television 3 - 3
A study of the research, evaluation and application of the television medium for instructional purposes. **Prerequisite: CM 50 or permission of Instructor.**

CM 53 Script Writing 3 - 3
Emphasis on writing scripts for industrial, educational, documentary and dramatic productions that utilize electronic media.

CM 54 Commercial and Public Broadcasting 3 - 3
An examination of documentary reporting and editing and the preparation and presentation of news, commentary, feature stories, news pictures, and films. It will also develop a critical appraisal of contemporary commentators. **Prerequisites: CM 51 and permission of Instructor.**

CM 55 Television Management 3 - 3
A study of television management with emphasis on facilities, personnel functions and activities. **Prerequisites: CM 50 and CM 51 and permission of Instructor.**

CM 60 Introduction to Photography 3 - 3
An introduction to the technical and aesthetic aspects of photography such as exposure techniques, film, paper, and basic 35mm camera work. Students are responsible for all paper and film supplies.

CM 61 Photography II 3 - 3
A continuation and refinement of the material covered in CM 60. Zoning, editing, sequencing, and experimenting with chemistry, film and paper will be included. Students are responsible for all paper and film supplies. **Prerequisite: CM 60.**

CM 62 Photography III 3 - 3
Advanced work in 35mm photography will be presented in addition to an introduction to large format cameras. Students are expected to choose photographic projects of study as well as be resposnible for all paper and film supplies. **Prerequisite: CM 61.**

CM 63 Large Format Photography 3 - 3
This course will specialize in 4x5 photography and the use of the Zone System. Students are responsible for all paper and film supplies. **Prerequisite: CM 61.**

CM 64 Introduction to Color 3 - 3
An introduction to color photography basic theory, C-prints, paper, and chemistry. Students are responsible for all paper and film supplies. **Prerequisite: CM 61.**

CM 65 Photography - An Historical and Cultural Perspective 3 - 3
A survey of the beginning and development of photography with a look to the future and its implications.

CM 66 Planning, Organization and Management of a Photography Facility 3 - 3
An examination of the understructure of a photographic facility in terms of personnel, use, traffic flow, function, equipment, expansion, flexible and inflexible rules, maintenance, inventory control, record keeping, and budget control. **Prerequisites: CM 61 and permission of Instructor.**

CM 67 Multi Screen Imaging 3 - 3
Development of skills necessary to plan, produce and present industrial and educational audio-visual programs requiring single or multi-screen images. **Prerequisite: Permission of Instructor.**

CM 68 Bio-Medical Photography 3 - 3
Examination and practice with the current techniques in applying photography to the bio-medical field. Students are responsible for all paper and film supplies. **Prerequisites: CM 62, CM 63, CM 64.**

CM 69 Photography Seminar 3 - 3
Advanced study in the medium. Students are responsible for all paper and film supplies. **Prerequisites: CM 62, or CM 63, or CM 64.**

CM 70 Introduction to Filmmaking-Silent Super 8 3 - 3
An introduction to cameras, film, lighting, editing, basic animation and wild sound. Students are responsible for all film supplies.

CM 71 Film Production II - Single System Super 8 3 - 3
An introduction to single system cameras, single system sound, portable and aug-

mented lighting, and basic single system editing. Students are responsible for all film supplies. **Prerequisite: CM 70.**

CM 72 Film Production III - Double System Super 8 3 - 3

An introduction to double system cameras, double system sound, advanced lighting, editing, directing, and knowledge of film crews. Students are responsible for all film supplies. **Prerequisites: CM 70 and permission of instructor.**

CM 73 Advanced Film Seminar 3 - 3

This course will deal with advanced projects in single or double system super 8. Students are responsible for all film supplies. **Prerequisites: CM 71 or CM 72 and permission of Instructor.**

CM 74 Special Topics - 16mm 3 - 3

Examination and practice with 16mm double system. Students are responsible for all film supplies. **Prerequisites: CM 73 and permission of Instructor.**

CM 75 Animation 3 - 3

This course will present animation techniques for education, industry, and aesthetics. Students are responsible for all film supplies. **Prerequisites: CM 70 and permission of Instructor.**

CM 76 History of Film I - Narrative 3 - 3

A study of the narrative approach to film making starting from the silent era.

CM 77 History of Film II - Documentary 3 - 3

A history of documentary films including both silent and sound.

CM 80 Introduction to Graphic Design 3 - 3

An introduction to the basic methods, attitudes, and skills common to all art forms as applied to graphic communicative forms. Emphasis will be on the development of manipulative skills and the ability to handle the basic principles of design such as line, form, balance, contrast, etc. Students are responsible for all graphic supplies.

CM 81 Graphic Design - Production I 3 - 5

A problem solving approach to graphic design projects. The course involves experiments with the physical and psychological aspects of graphic communication using graphic, typographic, and photographic forms. Emphasis is on the effects of design on the communication process. Students are responsible for all graphic supplies. **Prerequisite: CM 80.**

CM 82 Graphic Design - Production II 3 - 5

An examination of the relationship of graphic design to the changing socio-economic forces in our society. This inter-relationship is made evident through the process of solving specific/related design projects. Problems are approached and solutions reached through teamwork and evaluated by joint critique. Students are responsible for all graphic supplies. **Prerequisite: CM 81.**

CM 83 Graphic Design - Photography 3 - 5

Commercial applications of photography will be explored, including product presentation, advertising, illustration, promotion and publication photography. The designer as photographer will solve assigned problems using various techniques and materials including photo modification, various treatments, resin coated papers and Kodalith films. Students are responsible for all graphic supplies. **Prerequisites: CM 60, CM 61, CM 80.**

CM 84 Graphic Management 3 - 3

A study of the theories and practices of advertising, sales, and marketing management in business, industry and education with emphasis on the graphic designer in the roles of creative art director, production manager, and designer/illustrator. **Prerequisites: CM 80, CM 81, CM 82.**

CM 85 Display and Signage Design 3 - 5

A survey of the field of general display, P.O.P. display, signage systems, identifiers and other larger forms of graphic expression. Emphasis on clear communication of information, ease of recognizability, and coherence of designed systems. Problems will be taken

through finished product or "mark-up". Students are responsible for all graphic supplies. **Prerequisites: CM 80, CM 81.**

CM 86 Book and Pamphlet Design 3 - 5

This course involves the design of text-intensive pieces. Students work with a variety of media (hand-drawn illustration, photography or typography as a graphic element). A discussion of effects of type choice on readability, use of white space, and methods of illustration are included. Problems involve copy casting, type selection, layout and design of multi-paged work, and choice of format and illustration. Students are responsible for all graphic supplies.
Prerequisites: CM 80, CM 81, CM 88 or permission of Instructor.

CM 87 Package Design 3 - 5

This course will study the graphic processes in three dimensional packaging with emphasis on the various materials and display requirements. Students will investigate and work with letterpress, offset, and silk screen processes. Students are responsible for all graphic supplies.
Prerequisites: CM 80, CM 81.

CM 88 Typography, Comprehensives and Mechanicals 3 - 5

An in-depth study of letter forms from ancient through modern photo-modified type. Projects involve the whole process from rough design, through comprehesives, to "camera-ready" mechanicals. Students are responsible for all graphic supplies.
Prerequisites: CM 80, CM 81.

LEVEL IV

CM 91 Methods of Teaching Communication 3 - 3

An exposure to the planning, methods, materials and curricula necessary for the teaching of Communications/Media.

CM 92 Practicum 15 - 30

This course will provide a full semester internship in which teams of Communications/Media apply their knowledges and skills to the solution of a comprehensive communications problem.

CM 90 Independent Study

In-depth study of a Communications/Media area not provided within the Communications/Media Curriculum.
Permission of the Instructor and Department Chairperson required.

COMPUTER SCIENCE

ACTING COORDINATOR: Kenneth Wadland
ASSOCIATE PROFESSORS: Theodore Lapierre, Robert Shaughnessy, Esmail Valanejad
ASSISTANT PROFESSORS: Karl Lindquist, Kenneth Wadland

The degree of Bachelor of Science in Computer Science must include: CS 15, 20, 23, 28, 31, 32, 37, 38; MA 23, 24, 26; PH 13, 14, 23, 24; plus 9 additional Semester Hours of Computer Science electives and 6 Semester Hours of Math electives. Recommended electives are: CS 21, 42, 44, 55; MA 17, 25.

CS 10 Introduction to Programming 3 - 3

Provides an opportunity for the student to learn how to program a digital computer using a popular higher level programming language such as BASIC or FORTRAN. Includes a brief introduction to the major hardware and software components of a digital computer along with their functions and inter relationships. This course is not offered for Computer Science major credit. **Prerequisites: none; high school algebra would be helpful.**

CS 15 Introduction to Computer Science 3 - 3

Provides a foundation for further studies in Computer Science. Topics include: Machine, Assembly and Higher-Level programming; number systems; logic circuits; major hardware and software systems of a stores program digital computer. This is the typical first course for the Computer Science curriculum. **Prerequisite: High School Algebra.**

CS 16 FORTRAN Programming 3 - 3

An in-depth study of the programming language FORTRAN with emphasis on numerical/scientific applications. Includes a substantial number of programming problems. **Prerequisites: CS 15 or equivalent.**

CS 18 COBOL - I Programming 3 - 3

Provides an introduction to and practice with the COBOL programming language. Topics include: COBOL; Identification, Environment, Data and Procedure Divisions; record and file design; arithmetic and logical operations; table-handling; sequential disk files. Top-down programming design using the ideas of structured programming is emphasized. Includes a substantial number of

programming projects. **Prerequisites: CS 15 or previous experience with a higher-level programming language.**

CS 20 Numerical Methods & Computers I 3 - 3

This course assumes knowledge of FORTRAN and/or BASIC. Topics generally covered in this course are: brief survey of iterative methods, infinite series, acceleration of convergence of an infinite series, numerical evaluation of exponential, logarithmic, circular functions, etc.; roots of equations, Descartes rule of signs, Fourier-Budan and Sturm theorems; methods of numerical integration. **Prerequisites: good background in algebra and two semesters of Calculus.**

CS 21 Numerical Methods & Computers II 3 - 3

Finite difference methods, interpolation, extrapolation, summation of certain series; Fourier series; ordinary differential equations (Euler, modified Euler, Runge-Kutta, etc.). **Prerequisites: Numerical Methods & Computers I (CS 20).**

CS 23 Data Structures 3 - 3

A study of the methods of organizing information to be used in problem solving. The course will introduce the programming language PASCAL and will emphasize algorithm development and programming style. **Prerequisite: CS 15**

CS 27 COBOL - II 3 - 3

A continuation of COBOL - I with emphasis on variable length records and indexed sequential files. Topics include: sorting and merging files; file creation, management and reporting; systems of programs. Includes a substantial number of programming projects. **Prerequisites: CS 18 or equivalent.**

CS 28 Assembly Language Programming 3 - 3

A study of programming at the assembly language level. One of the available computer systems will be selected for detailed analysis and programming problems. **Prerequisite: CS 23.**

CS 30 Introduction to Systems Analysis 3 - 3

Provides an introduction to Systems Analysis. Topics include: problem definition; data collection; alternatives; feasibility studies; proposals; prototype systems; implementation and follow-up. Case studies and project work are included. The course is strongly computer orientated. Students who desire a more complete development of systems analysis should investigate course offerings by other departments. **Prerequisites: Solid programming experience with a higher-level language and at least three courses in some application area such as Business, Economics, Education, Sociology, etc.**

CS 31 Operating Systems 3 - 3

Job scheduling and I/O management in a multi-processing operating sytem will be studied. Programming problems will involve the design and implementation of systems programs modules. **Prerequisite: 28.**

CS 32 Programming Languages 3 - 3

A comparative study of typical higher-level languages. The syntax and semantics of several programming languages will be studied, such as: FORTRAN, COBAL, APL, LISP, SNOBOL. **Prerequisite: CS 28**

CS 37 Digital Electronics 4 - 5

Diode and transistor gates; flip flops, registers, counters, adders, analysis and synthesis of combinational and sequential logic circuits using integrated circuits.

CS 38 Computer Organization 4 - 5

Arthimetic and control circuits; memory devices; computer structure; input and output devices; interfacing; typical mini-computer using the PDP - 8 as an example; elements of machine language programming as an aid to understanding computer operation from a hardware standpoint.

CS 40 Project Management 3 - 3

This course provides students with the opportunity to participate as a member of a project team in realizing solutions to a selected problem. Semester Hour credits will vary depending on the current project. Topics include: project planning; organization and staffing; project direction; control systems. This course is strongly computer orientated. Students who desire a more complete development of project management should investigate course offerings by other departments. **Prerequisites: CS 30 or equivalent and permission of Instructor.**

CS 42 Compiler Construction 3 - 3

The techniques involved in the analysis of source language and the generation of object code. The term project will consist of the design, construction, and implementation of a simple compiler. **Prerequisite: CS 31.**

CS 44 Software Design 3 - 3
A study of program specification and design for large software projects. Students will develop production programs working in small cheif programmer teams. **Prerequisite: CS 31.**

CS 50 Programming Practicum
This course provides the opportunity for a student(s) to work under the direction of a faculty member in a particular area of programming. Typical areas of study include: computer graphics; compiler design; operating systems; micro-programming; computer assisted instruction and data structures. Semester Hours credits will vary dependent upon current project.

CS 55 Microprocessor Laboratory
Laboratory work in the interfacing of memory systems and I/O to programmable logic devices. Includes the construction and interfacing of a simple peripheral device and the writing of software to control it. **Prerequisites: CS 31 and CS 38.**

CS 58 Topics in Computer Science
This course provides the student with an opportunity to study a topic of current interest. Topics will generally deal with an area of specialized interest or new developments. Semester Hour credits will vary dependent upon the current topic. **Prerequisites: varies with topic, but usually a minimum of five prior courses in Computer Science is assumed.**

ECONOMICS

ASSOCIATE PROFESSOR: Caroline Murphy

EC 10 Principles of Economics: Macro-economics 3 - 3
A study of the theory of employment, income and growth. Stabilization policy and current problems in American capitalism are emphasized.

EC 12 Principles of Economics: Micro-economics 3 - 3
A study of the theory of the business firm. Efficiency in the allocation of resources is examined under conditions of pure competition, pure monopoly, monopolistic competition and oligopoly. **Prerequisite: EC 10.**

EC 13 Consumer Economics 3 - 3
Theories of consumption and economic functioning, demand; consumer problems; standards of living; policies for protecting consumers and expanding comsumption.

EC 14 Money and Banking 3 - 3
A study of the role of money, credit and banking in the American economy. Special emphasis is placed on the applicability of monetary policy to the problems of economic stability.

EC 15 Economic Development 3 - 3
An examination of the problems of growth with particular reference to less developed countries; topics of discussion include population, income growth, foreign investment and aid, allocation of resources, and the role of government. Investigation through case studies is emphasized.

EC 90 Independent Study in Economics
Open to students who have permission of the supervising instructor and the department. Course of study, meetings, and credit by arrangement.

EDUCATION

CHAIRMAN: Francis Powers
PROFESSORS: Patricia Barbaresi, Joseph Durant, Francis Powers, Elizabeth Ross
ASSOCIATE PROFESSORS: Howard Kingsley, George Miller, L. Doris Moquin, Helen O'Flaherty
ASSISTANT PROFESSORS: Anne Green, Richard Houston, Irene Passios

The degree of Bachelor of Science in Education, Early Childhood, must include ED 10, 20, 21, 22, 24, 31, 84; PY 10; EP 10, 11.

The degree of Bachelor of Science in Education, Elementary, must include ED 41, 60, 63, 65, 86; PY 10, 21, 75; MA 10, 83; SC 81; MU 10. The student must also supply fifteen plus semester hours toward an area of specialization. Recommended free electives are Introduction to Geography, Geography of U. S. and Canada, Introduction to Sociology, Psycho-Social Problems of Urban Children, Learning Disabilities, Children's Literature and Guidance.

Specialization for Elementary Major

All Elementary majors must select and complete a specialization from one of the following areas: Art, Behavioral Sciences, English, Foreign Language, Geography, History, Language Arts, Mathematics, Music, Physical Education or Science. Requirements for these specializations are found below.

Art Specialization

Students in the Elementary Curriculum who wish to specialize in Art may do so by electing courses under the guidance of the Art Department.

Behavioral Sciences Specialization

Students in the Elementary Curriculum who wish to specialize in Behavioral Sciences may do so by electing 24 semester hours under the guidance of the Behavioral Sciences Department.

English Specialization

Students in the Elementary Curriculum who wish to specialize in English may do so by electing 18 semester hours in English, 6 hours of which should be taken from the following courses: English Literature I, English Literature II, American Literature I, and American Literature II.

Foreign Language Specialization

Students in the Elementary Curriculum who wish to specialize in French or Spanish may do so by attaining the minimum proficiency level of FR 31 or FR 34 or SP 31 or SP 34 and taking either FR 88 or SP 88.

Geography Specialization

Students in the Elementary Curriculum who wish to specialize in Geography may do so by electing 15 semester hours of Geography under the guidance of the Geography faculty from the Geography elective offerings.

History Specialization

Students in the Elementary Curriculum who wish to specialize in History may do so by electing 15 semester hours of History under the guidance of the Social Sciences Department from the History elective offerings.

Language Arts Specialization

Students in the Elementary Curriculum who wish to specialize in Language Arts may do so by electing the following under the guidance of the Elementary Education Department: ED 40, 41, EN 80, PY 15 and PY 16.

Mathematics Specialization

Students in the Elementary Curriculum who wish to specialize in Mathematics can do so by electing 21 semester hours of Mathematics under the guidance of the Mathematics Department. Interested students should contact the elementary specialist advisor in the Mathematics Department for information and advice in planning a program of study. Courses elected to fulfill the requirements of the mathematics specialization are usually chosen from among CS 10, MA 10, MA 11, MA 12, MA 13, MA 20, MA 21, MA 23, MA 25, MA 26, MA 29, MA 30, MA 31, and MA 32.

Music Specialization

Students in the Elementary Curriculum who wish to specialize in Music may do so by electing the following under the guidance of the Music Faculty:

MU 10, 22 (or equivalent), 83 or 80, 42, 43, 44, 45
Three semesters of any combination of MU 41 and/or 40
Two Music Electives

Physical Education Specialization

Students in the Elementary Curriculum who wish to specialize in Physical Education should elect PE 14, PE 16, PE 17, PE 83 and 6 semester hours of physical activity skills.

Science Specialization

Students in the Elementary Curriculum who wish to specialize in Science may do so by electing 15 semester hours of science under the guidance of the Biology or Chemistry or Physics Departments.

Elect 15 hours from the following: BI 10, 11, 20, 29, 21, 25, 26, 23, 31; CH 11, 12; GE 21, 25; PH 11, 12; SC 11, 12.

Bachelor of Science in Education, Secondary

Candidates for the degree of Bachelor of Science in Education, Secondary, must complete 60 semester hours of general education and major in one of the following disciplines: Biology, Chemistry, English, Geography, History, Mathematics, or Physics. They must complete a sequence of Behavioral Science courses in the order indicated: PY 10, PY 23 and PY 75. English majors must take ED 64. All secondary majors (except Industrial Arts majors) must complete the following sequence of professional courses in the order indicated: ED 61; IM 24; the appropriate Methods course in teaching one's major, and ED 87 Student Teaching in Secondary Education for a full semester.

ED 01 Personal Reading Improvement

Individualized reading programs are tailored to meet the particular needs of each student. Students experiencing

difficulty in understanding what they read engage in programs stressing comprehension skills. Students with good comprehension but with slow reading rates receive assistance in acquiring skills to at least double their speed. Additionally, all students are given instruction in reading at different rates for different purposes.

Each student's program is completed after ten weeks or thirty hours of instruction. Students are free to select any three hours in the week - from 8:30 a.m. to 4:30 p.m. One credit per semester.

ED 10 Early Childhood Foundations I 4 - 5

An examination of the historical perspectives and philosophical orientations in the field of early childhood education. Specific attention is given to an analysis of current programs. Students will be involved in a preschool program for a practicum experience. Required of Early Childhood majors.

ED 20 Early Childhood Foundations II 4 - 5

A brief orientation to the developmental philosophy and goals of early childhood education. Methods and activities are presented. Required of Early Childhood majors.

EP 10 Behavioral Science in Early Childhood I 4 - 5

Study of principles, patterns, and theories of human development and learning as well as principles and techniques of naturalistic and standardized child study. Observation, recording, synthesis, and interpretation of the behavior of young children will occur within a practicum setting. Case studies will be written. Required of Early Childhood majors. **Prerequisite: General Psychology or Introduction to Psychology.** Required for EP 11.

EP 11 Behavioral Science in Early Childhood II 4 - 5

Continuation of EP 10. (EP 10 and EP 11 cannot be taken simultaneously.)

ED 21 Reading in Early Childhood Education 4 - 5

A presentation of the facets of a balanced primary reading program involving verbal facility, concept building, work recognition, work orientation and sounds, auditory discrimination, sentence patterns, and comprehension and interpretation of materials read. Many techniques for teaching primary reading are discussed and illustrated. A practicum in the reading area is required.

ED 22 Language Arts in Early Childhood Education 4 - 5

An examination of the four components of verbal communication -- listening, speaking, reading, writing; current materials and programs for developing language; use of literature in language and concept development; practicum for application of learning.

ED 24 Fine Arts in Early Childhood Education 4 - 5

The study of the integration of art, music and movement for young children using an interdisciplinary approach. Investigation of the objectives, methods and materials in the fine arts areas.

ED 25 Child Development Bureau Pre-Kindergarten Clinical 4 - 5

This course provides an opportunity for those interested in working with pre-kindergarten age children to create a learning environment using free and inexpensive materials. Students will create learning devices, design the room layout, develop a program, and then conduct the learning activities with young children under the supervision of the instructor.

ED 30 Methods and Materials in Early Childhood Education 3 - 3

A hands-on workshop and exploration of all areas of the curriculum. In doing so students will research and prepare games and devices appropriate to an early childhood classroom. Elective for all education majors.

ED 31 Science, Math, and Social Studies in Early Childhood Education - 5

Emphasis is placed on the development and demonstration of instructional techniques and materials in science, math, and social studies that are appropriate for heterogeneous groups of young children.

ED 40 Improvement of Reading 3 - 3

This course provides students with the competencies necessary to diagnose and correct reading problems in their own future classrooms and the skills of administering, scoring, and analyzing informal Reading Inventories. A practicum will be provided during class time in which the student will test a child, plan a program of instruction for that child and carry out that program. Em-

phasis is also placed on the development and utilization of instructional materials with the assigned child.

ED 41 Language Arts in Elementary Education 3 - 3

A presentation of the meaning and importance of language arts, an introduction to the nature of language and language growth, and a summary of the characteristics of children of elementary school age levels that affect and are affected by the language arts program. Stress is placed on elements of writing, speaking, listening, handwriting, and spelling. A practicum is an integral part of the course.

ED 60 Principles and Practices of Elementary Education 3 - 3

An examination of the theoretical and practical knowledge of the teaching process. Students will demonstrate competencies in the areas of planning, curriculum design, and evaluation. Focus will be placed on the needs and learning styles of the elementary school child and the instructional strategies used to effectively meet those needs. In addition, classroom management skills and techniques will be emphasized. Students will be required to observe on a regular basis in an elementary classroom. Observation of elementary school children and teaching strategies as well as participation will occur in a practicum setting.

ED 61 Success Practices in Secondary Education 3 - 3

An opportunity to experience many teacher roles at the secondary school level. The student serves as a tutor in a public school, develops curriculum and instructional material, and designs, presents, and critiques a micro-lesson.

ED 63 Reading in Elementary Education 3 - 3

An examination of the reading process, methods of evaluation and strategies for beginning reading. Reading skills and procedures for developing these skills are examined and current approaches to the teaching of reading are evaluated. The student will be made cognizant of methods of grouping and evaluation procedures. A practicum is required.

ED 64 Reading in the Secondary School 3 - 3

Investigation of the reading process. Discussion of current evaluative methods. Analysis of the reading skills and procedures for development. Required of Secondary English majors.
Prerequisites: PY 23, ED 61.

ED 65 Foundations of Education 3 - 3

A study of the professional aspects of teaching, the school's role in society, the organization and support of American education, the historical foundations of education and its philosophical bases.

Issues affecting curriculum development and the future of American education are considered.

ED 68 Individualized Reading 3 - 3

Competencies necessary to individualize reading instruction are developed. The organization of skills and learning materials, record keeping systems and the methods and materials of instruction are analyzed. Classroom functioning for independence and self-responsibility in learning is studied and supplemented by a supervised practicum, which provides for individual assistance.

ED 70 Parent-Child Relations in Education 4 - 5

This course explores the role of the parent in the development of the child and how the parent relates to the educational system. This course will stress awareness of how parents stimulate the growth of behavioral trends in their children, as well as their usefulness as resources to improve the educational environment of the child.

ED 80 Integrated Creative Arts Teacher Education Program 15 SH

This is a full-semester experience which includes five weeks of classroom instruction and training (creative work in visual arts, language arts, movement, music, and integrating art forms). Subsequent to the initial period, students will be placed in field stations for classroom experiences for the remainder of the semester. These activities will involve assisting teacher-specialists in one or more of the art form areas, and the development and implementation of programs for the specific classroom and its pupils so as to foster the pupils' personal expression through creation in the arts.

A weekly seminar on Wednesday afternoons from 1:00 to 3:00 will be held at the College for the purposes of workshop experiences and problem solving. Students are expected to be present in the schools on a full-time basis ordinarily throughout the semester. They will be visited and evaluated regularly by College faculty as well as by cooperating teacher-specialists in the schools.

ED 84 Student Teaching in Early Childhood Education 12 - 25

Each student is required to have a full semester of student teaching consisting of

two experiences, one in a kindergarten and a second at the primary level.

ED 86 Student Teaching in Elementary Education 12 - 25

Each student is required to have a full semester of student teaching consisting of two experiences at the elementary level.

ED 87 Student Teaching in Secondary Education 12 - 25

Students are assigned to cooperating schools for a semester of student teaching.

ED 88 Introduction to Learning Disabilities 3 - 3

A study of some of the causes of school learning disabilities at the Elementary level. Specific techniques and remediation exercises will be discussed.

ED 90 Independent Study in Education 3 SH

Provides students in early childhood, elementary, and secondary education with the opportunity to do research with staff guidance in a problem in education. Limited to juniors and seniors. **Prerequisite: permission of department.**

ENGLISH

CHAIRMAN: William Barker
PROFESSORS: William Barker, Terry Grabar
ASSOCIATE PROFESSORS: Judith Budz, Leo Hines, William Keough, Marilyn McCaffrey, Erwin Pally, Louis Shepherd
ASSISTANT PROFESSORS: Colin Bourn, George Case, Joseph Finkel, Marie McAllister, John McGrail, M. Irene Miranda, Robert Tapply, Eugene Casassa, Robert Welch
INSTRUCTOR: William Rappel
PART-TIME INSTRUCTOR: Dona Stein

The Bachelor of Arts in English must include EN 22, 23, and at least 24 semester hours in English electives. Second year proficiency in a foreign language is required for an A.B. in English.

The degree of Bachelor of Science in Education, Secondary, in English must include EN 22, 23, 88; PY 10, 23, 75; ED 61, 64, 87; IM 24; and at least 18 semester hours of electives in English.

Honors in English are awarded to English majors with an overall grade point of 3.0 and a grade point in English of 3.5. For further information apply to the English Department.

EN 01 Writing Skills Workshop

An intensive study of the basic writing skills. Cannot be taken simultaneously with either EN 10 or EN 12. One credit per semester.

EN 10 English Composition I 3 - 3

Practice, both oral and written, in expressing ideas with precision, clarity, and economy. The research essay. Critical reading.

EN 12 English Composition II 3 - 3

Essentially a continuation of EN 10, but more advanced. Logic and the vocabulary of criticism. **Prerequisite: a passing grade in EN 10. Prerequisite for all English electives: EN 10, EN 12.**

EN 20 American Literature I 3 - 3

Representative American writers from Colonial days through the Civil War.

EN 21 American Literature II 3 - 3

Representative American writers since the Civil War.

EN 22 English Literature I 3 - 3

British writers from the Old English period through the early Romantic writers of the late 18th century.

EN 23 English Literature II 3 - 3

British writers since the Romantic movement.

EN 24 World Literature I 3 - 3

European literary masterpieces from the beginning through the middle of the 17th century.

EN 25 World Literature II 3 - 3
European literary masterpieces from the mid-17th century to the present.

EN 30 World Drama 3 - 3
Significant and representative plays from the beginning to the modern period.

EN 31 Modern Drama Workshop 3 - 3
Emphasis on the craft of playwriting as well as other skills useful for any professional concerned with communication, performance, oral reports, discussion and written analysis of significant contemporary plays. The course will be tailored to the needs of the individual student who will choose from a variety of projects.

EN 32 The World Novel to 1914 3 - 3
Significant novels representing various countries and periods as well as stages in the development of this literary form.

EN 33 The World Novel Since 1914 3 - 3
Modern novels are studies both aesthetically and as human documents.

EN 34 The Short Story 3 - 3
Significant stories of some of the great writers of the Western world, showing the evolution of the short story form.

EN 35 Modern Poetry 3 - 3
Representative modern poetry with the emphasis on American and English poets.

EN 36 Literary Criticism 3 - 3
Critical theory and practice from Aristotle through the 20th century.

EN 40 The Middle Ages 3 - 3
Literary forms that made their first appearance after the emergence of Middle English.

EN 41 Chaucer and His World 3 - 3
Emphasis on the Canterbury Tales and their Medieval background.

EN 42 Shakespeare I 3 - 3
Shakespeare's vision of politics, society, and history. Studies in the chronicles of English history and the image of heroism and kingship.

EN 43 Shakespeare II 3 - 3
Shakespeare's vision of human destiny. Studies in the Comic and the Tragic.

EN 44 Baroque English Literature 3 - 3
Baroque or metaphysical elements in seventeenth century literature from Donne to Vaughan, including Herbert, Crashaw, Marvell, Browne, Webster, and Middleton.

EN 46 Neoclassical Literature from Jonson to Congreve 3 - 3
Neoclassical elements in the works of Jonson and his "school" including a close study of Dryden and Restoration drama.

EN 47 The Age of Satire: 1700 - 1750 3 - 3
Emphasis on the importance to the age of standards in life as well as in literature, the public responsibilities of the writer, and the various ways that humor is used as a weapon for social purposes.

EN 48 From Classic to Romantic: 1750 - 1800
Changing values in philosophy, the nature of man, politics, etc. The reflection of these changes in the art and music as well as the literature of the late 18th Century.

EN 49 The Romantic Self 3 - 3
The pursuit of individual vision in works of writers from Wordsworth through Mary Shelley's Frankenstein to the mad Lord Byron.

EN 50 The Nineteenth-Century English Novel 3 - 3
Significant novels demonstrating the changing cultural milieu and varying approaches of the genre during this period.

EN 51 Belief and Doubt 3 - 3
Man's relationship to a changing society in the face of nineteenth-century industrialization and scientific progress, as seen in the major writers of the period.

EN 52 Decadence and Transition 3 - 3
The Wilde 90's, Edwardian exuberance, and World War I collated with modern trends in poetry, prose, and drama.

EN 53 Twentieth - Century Irish Literature 3 - 3
Irish writers from Yeats and Joyce until the present.

EN 54 The Novel in the Eighteenth Century 3 - 3
The origins of the novel in England and its development as a reflection of the tastes of a rising middle class. Defoe, Richardson, Fielding, Johnson, Austen and others.

EN 60 The Romance in America 3 - 3
Nature, idealism and community in the works of Hawthorne, Poe, and others.

EN 61 American Novel 1890 - 1950 3 - 3
A close examination of several representative works by major American novelists of this period.

EN 62 American Novel since 1950 3 - 3
A close analysis of seven or eight major novels.

EN 63 Major American Writers of the Twentieth Century 3 - 3

The varied creativity of American writers of fiction, drama, poetry, criticism, and the essay since World War I.

EN 64 The Black Author in the Modern World 3 - 3

Mainly U. S. writings.

EN 65 Minority Literature 3 - 3

Significant writings by American Indians and Black, Mexican, Puerto Rican and Oriental Americans: considered esthetically and as social and political documents.

EN 66 Telling the Tale 3 - 3

English and American novels told by liars, children, gossips, novelists writing about themselves, uncaring and omniscient narrators. How point of view and value interact in fiction.

EN 70 The Bible as Literature 3 - 3

A study of the style, narrative techniques, symbols, and historical setting of the Old and New Testament writers.

EN 71 Laughter, Comedy, and Joy 3 - 3

Studies in literary comedies and theories of comedy from various periods and genres.

EN 73 Women and Literature 3 - 3

Emphasis on literature by and about women, including such authors as Ibsen, James, Stein, Woolf, Sexton, Plath and others.

EN 74 Occult in Literature 3 - 3

Spiritualism, witchcraft, demonology, extrasensory perception and other areas of the occult found in the works of Scott, Walpole, James, Hawthorne, Shakespeare, Wilde and others.

EN 75 Journalism 3 - 3

Readings in the mass media with individualized writing assignments. Some emphasis on the technical aspects of newspaper work and the methods of New Journalism

EN 76 Creative Writing 3 - 3

For outstanding students who have completed EN 10 and 12. Upon approval of instructor.

EN 77 The Cinematic Eye 3 - 3

An exercise in esthetics through Super - 8 film making. Rockbottom cost and minimally gadgeted cinematography. Emphasizes self-discovery through creativity. An aid in teaching. Student supplies his own materials.

EN 78 Writing for the Natural and Social Sciences 3 - 3

Individualized work in writing appropriate for those taking courses in physical and life sciences, psychology, human services, and other social sciences.

EN 79 Creative Dramatics 3 - 3

Students will learn to express themselves orally and physically through mime, improvisation, dance, drama and role-playing, and to use this knowledge in dealing with children and adults.

EN 80 Children's Literature 3 - 3

Focusing on a wide range of subjects with criteria for evaluation of books, for related library sources, for book fairs, and for school and classroom library needs.

EN 81 Literature for Young Adults 3 - 3

Wide reading of literature written for the teenager. Different types of literature such as science fiction, fantasy, television plays, realistic novels and poetry will be read and criteria for their selection examined.

EN 82 Teaching Writing to Secondary Students 3 - 3

Practice and research in alternatives for teaching writing in secondary schools. A study of writing as "process." Explores a variety of approaches through experiments for the teacher.

EN 83 The Structure and the Nature of Language 3 - 3

The study of language systems and grammatical theories; history of the English language; theories of acquisition; psycholinguistic and sociolinguistic topics.

EN 84 Writing for Business and Technology 3 - 3

A study of writing for students interested in Business and Management.

EN 86 and 87 Journalism Practicum: (P1 and P2) 3 - 3

Open to members of the Rhetoric staff, and other students engaged in appropriate on-campus or off-campus journalistic activities. (P1 and P2 may be taken separately for a total of 6 credits.)

EN 88 The Teaching of English 3 - 3

The methodology of English (lesson planning, selection of materials, curriculum development, review of relevant research). Offered in fall semester only.
Prerequisite: IM 24.

EN 89 Internship 12 SH

Students will be placed in local agencies or businesses involving journalistic or broadcast skills. Students registering for EN 89 should also register for EN 93.

EN 90 Independent Study 3 - 3

For English majors excelling in scholarship, upon approval of both department head and advising instructor.

EN 92 Seminar 3 - 3

Literary analysis and research, topic to be selected by instructor. Primarily by English majors, others admitted with permission.

ENVIRONMENTAL SCIENCE

ASSOCIATE PROFESSOR:
Frederick Davis

The Bachelor of Science in Biology/ Environmental Science includes all requirements of the Bachelor of Science in Biology. Additional requirements are six semester hours of earth science or geology, a course in computer science, ES 10, ES 70, and three semester hours of electives in Environmental Science. The major requires that EC 10, Environmental Law, and Urban Planning be used to fulfill the social science requirement and PL 10, EN 78, and photography or drawing course be used to fulfill the humanities requirements in General Education.

ES 10 Seminar in Environmental Science 1 - 1

Offered: Fall and Spring semesters
Survey of the practical scope of environmental science with special reference to the variety of acticities performed by environmental scientists and the academic preparation and performance expected by potential employees. Relevance of various disciplines to career preparation. Lectures, films, visits to private and governmental agencies, seminars and symposia by students, faculty and visiting representatives of government and industry. One hr. per week plus occasional additional hours.

ES 70 Field Techniques in Environmental Science 6 sh

Offered: Summer, 5 weeks full time.
Field work includes planning and execution of practical environmental investigations and the preparation of a finished technical report. **Prerequisites: Junior or senior standing and permission of the Environmental Science Committee Practical experience in the use of instrumentation and techniques for the acquisition and analysis of data and the presentation of results from a variety of environmental studies.**

ES 80 Internship in Environmental Science 3 - 6 sh

Offered: Fall and Spring semesters.
Assignments depend on needs of participating organization and the interests and abilities of the student. **Prerequisites: Junior or senior standing and permission of the Environmental Science Committee Work experience in private or governmental concerns.**

FRENCH

ASSOCIATE PROFESSORS: Pierre Pinet, Jeanne Hambright

FR 10 French for Beginners I 3 - 4

Correct pronunciation, reading ability and fundamentals of grammar and syntax. French gradually becomes the working classroom and laboratory language. For students with no language experience or less than two years high school level. Students with two or more years not admitted without permission of instructor.

FR 11 French for Beginners II 3 - 4

A continuation of FR 10.

FR 20 Intermediate French I 3 - 4

Conversation and laboratory practice; readings stressing life, customs and culture of France. **Prerequisite: two years of high school, French II and/or Instructor's permission.**

FR 21 Intermediate French II 3 - 4

A continuation of FR 20.

FR 30 French Civilization I 3 - 3

Development of the French nation as revealed in its history, geography and basic institutions through modern literature.
Prerequisite: FR 21 or equivalent and/or Instructor's permission. (Course conducted in French).

FR 31 French Civilization II 3 - 3

A continuation of FR 30.

FR 33 French Literature I 3 - 3

A survey of the main currents of French literature from the Middle Ages through the 18th century. **Prerequisite: FR 21 or Instructor's permission.**

FR 34 French Literature II 3 - 5

A continuation of French Literature I.

FR 88 Methods for Teaching French in the Elementary School 3 - 3

Techniques and materials for use in elementary school. Required for foreign language specialization. **Minimum of 12 semester hours of French or its equivalent and Instructor's permission is required.**

FR 90 Advanced French Independent Study 3 - 3

Prerequisite: Minimum of 12 semester hours. 2.0 grade-average in French, and permission of Instructor, Department Chairman and Academic Dean.

GEOGRAPHY

ASSOCIATE PROFESSORS:
Robert Champlin, James Barbato
ASSISTANT PROFESSOR:
Robert Gardula

The degree of Bachelor of Science and Bachelor of Arts in Geography must include GE 10 and 36 semester hours in one of the following areas: Earth and/or Environment Science, Urban-Community development and/or Public Service, or Area Development. Courses are structured so as to prepare the student for employment or graduate work. The Bachelor of Arts degree requires foreign language proficiency at the second year college level.

The degree of Bachelor of Science in Education, Secondary, in Geography must include GE 10, 88; PY 10, 23, 75; ED 61, 87; IM 24; and 27 semester hours in Geography electives. Students may meet the state certification requirement for teaching Earth Science, as well as Geography, by taking 18 semester hours in related courses which should be chosen after consultation with a member of the geography faculty.

GE 10 Introduction to Geography 3 - 3

The interrelationships between the physical and cultural elements of man's environment.

GE 11 Principles of Human Geography 3 - 3

An introduction to the elements and processes underlying economic, social, and political geographic patterns, with applications to actual case studies and situations.

GE 88 Special Methods in Teaching Geography 3 - 3

Lesson planning, selection of materials, curriculum development, review of relevant research. Prerequisite: IM 24 and ED 61.

GE 90 Independent Study in Geography

Provides exceptional students the opportunity of research with faculty guidance in a subject or problems of geographic significance. Prerequisite: 12 hrs. of geography and permission of Instructor. Hours and credit by arrangement.

Physical, Earth, and Environmental Courses

GE 13 Earth, Sea and Air 3 - 4

Selected topics from the earth sciences. (This course is identical with SC 13 and may be counted as a laboratory science course.)

GE 21 Geology 3 - 4

An introductory survey of the basic elements of physical and historical geology. Laboratory required. Open to all students.

GE 30 Economic Geography 3 - 3

Analysis of factors underlying the spatial distribution of primary, secondary, and tertiary economic activities, with emphasis on locational processes in commercial economics.

GE 31 Political Geography 3 - 3

Dependent and independent political units, boundary disputes, strategic areas, buffer zones and the function of international organizations.

GE 34 Developing Nations 3 - 3

Investigation of the phsical, economic, and social circumstances surrounding the growth of population relative to the output of food in economically underdeveloped countries and regions. Involves both a systematic and regional view of world population problems.

Economic Geography

GE 40 Meteorology 3 - 3

Fundamental principles of weather systems. Emphasis will be on mid-latitude and tropical cyclones, convective phenomena and weather modification.

GE 41 Climatology 3 - 3

Regional differentiation of the climatic zones of the major land and ocean areas of the world. Special attention will be given to urban climatology and the energy and moisture climatology of the earth. Prerequisite: GE 40 Elements of Weather or permission of the Instructor.

GE 42 Geomorphology 3 - 3

A comprehensive study of land forms and their origins. Prerequisite: GE 21 Geology or permission of the Instructor.

GE 43 Oceanography 3 - 3

A study of the physical and chemical properties of sea water, atmospheric interaction with the sea surface, currents and volume flow, the energy budget of the

oceans, and the submarine geology of the ocean basins including a thorough discussion of ocean floor spreading.

Prerequisites: 6 hrs. in geography, earth science, or the natural sciences.

GE 44 Urban Geography 3 - 3

Analysis of the external relationships and internal structure of cities, with emphasis on the spatial attributes of contemporary urban qualities and problems in America. Classroom activities are supplemented by applied studies in the greater Fitchburg-Leominster area.

GE 45 Remote Sensing of the Environment 3 - 3

Techniques in the use of maps and aerial photos as applied to environmental perception and spatial analysis.

GE 46 Selected Topics in Environmental Geology 3 - 3

Basic principles of geology and geomorphology will be applied to the study of environmental problems caused by such natural phenomena as earthquakes, landslides, flooding, groundwater contamination, pollution, pollution caused by the mining and use of fossil fuels, etc. Data from actual events will be studied and utilized when considering the special problems these natural events cause to man.

Prerequisites: GE 21 or GE 42 or the equivalent.

GE 47 Geographic Perspectives on Conservation 3 - 3

An analysis of natural resources problems arising from changes in technology, population pressure, and concern with the quality of environment. **Prerequisite: GE 10.**

GE 48 Cartography 3 - 3

Techniques of presenting data via mapping and field survey. **Prerequisite: Permission of the Instructor.**

U. S. and Foreign Area Studies

Regional and systematic analysis based upon geographic elements influencing domestic evolution and international relations. **Prerequisite: GE 10.**

GE 32 U.S. and Canada 3 - 3

GE 33 Latin America 3 - 3

GE 35 Europe 3 - 3

GE 36 Asia 3 - 3

GE 38 Africa 3 - 3

GERMAN

ASSOCIATE PROFESSORS: John Burke, Jeanne Hambright

GR 10 German for Beginners I 3 - 4

Correct pronunciation, reading ability, and fundamentals of grammar and syntax. German gradually becomes the working classroom and laboratory language.

GR 11 German for Beginners II 3 - 4

A continuation of German 10.

GR 20 Intermediate German I 3 - 4

Conversation and laboratory practice; readings stress the life, customs, and culture of Germany. **Prerequisite: Two years of high school German or GR 10 and GR 11.**

GR 21 Intermediate German II 3 - 4

Continuation of GR 20.

GR 30 German Civilization I 3 - 3

History, geography, literature, fine arts from Holy Roman Empire through today. Given in German. **Prerequisite: GR 21 and/or permission of Instructor.**

GR 31 German Civilization II 3 - 3

Continuation of GR 30.

GR 33 German Literature through Goethe 3 - 3

Representative works of literature up to and including Goethe. Conducted in German. **Prerequisite: Completion of GR 21 and/or Instructor's permission.**

GR 34 German Literature since Goethe 3 - 3

Continuation of GR 33.

GR 35 German Conversation and Composition 3 - 3

Prerequisites: Minimum of 12 semester hours, 2.0 grade-average in German and permission of Instructor or Department Chairman.

GR 36 Modern German Literature in Translation 3 - 3

An introduction to the varied creativity of German writers of fiction, drama, and poetry of the 20th century. The German film contribution of the 1920's with feature-length films will be included. Readings will be in translation and the course will be conducted in English.

GR 37 Modern German Culture: "The Road to Hitler" 3 - 3

Given in English. An examination of the cultural factors in music, art, literature and film which illuminate the events leading to National Socialism. Readings will focus on translated materials especially in literature which help to explain why the Germans embraced Adolph Hitler. Includes a significant audio-visual component.

GR 90 Independent Study in German 3 credit hours

Open to students in the language with the permission of the supervising instructor and the Department Chairman. Meeting times and credit by arrangement.

HISTORY

PROFESSORS: Muriel McAvoy, George Merriam, Donald Norton
ASSOCIATE PROFESSORS: Lawrence Arnold, Pasquale Micciche, Edmund Thomas
ASSISTANT PROFESSORS: Norman Carson, John Clark, Alan Goldman, Douglas Hebb

The Bachelor of Science and Bachelor of Arts in History must include HI 10, 12, 21, 22, 80; one course from HI 16, 17, 56, 57, 63 or 64; one elective from European History; one elective from U. S. History; and an additional 6 semester hours of History electives. The Bachelor of Arts requires foreign language proficiency at the second year college level. Candidates for the Bachelor of Arts may choose their minor from either the Humanities or the Social Sciences. Candidates for the Bachelor of Science may choose their minor from either the Social or Behavioral Sciences. Fifteen semester hours of courses are required for a minor. A Bachelor of Arts in History with a concentration in European Studies must include HI 10, 12, 21, 22 and 12 semester hours of History electives of which at least 9 semester hours are in European History and 15 semester hours of related courses of which at least 3 semester hours each in the areas of Geography, Art, Philosophy and Literature. The latter courses must be chosen from the list of courses applicable to the European Studies concentration. This degree must also include proficiency in a modern European language at the third year college level.

A Bachelor of Science in Education, Secondary, in History must include PY 10, 23 and 75; HI 10, 12, 21, 22, 80, 88; one course from HI 16, 17, 56, 57, 63, 64; one elective from European History; one elective from U. S. History; and an additional 9 semester hours of History or courses related to History. The latter includes government, political science, economics, history or literature. The major must also include ED 61, 87, and IM 24.

Introductory Courses

Courses numbered 10-29 are primarily for freshmen and sophomores. History 10 and 12 (Modern European History I and II) are prerequisites for all elective courses in European History. History 21 and 22 (United States History I and II) are prerequisites for all courses in United States History. History 20 may be substituted for History 12 as a prerequisite to further courses in European History.

HI 10 Modern European History I 3 - 3

The evolution of modern European ideas and institutions from the Renaissance to the Napoleonic era. Political events, selected biographies, topics in cultural history, and economic and social changes.

HI 12 Modern European History II 3 - 3

Political developments, ideologies such as socialism and nationalism, the impact of science and technology, and the changing relationship of Europe to Africa and Asia. Not open to those who have credit for HI 20.

HI 13 Medieval Europe 3 - 3

Major characteristics and institutions of medieval civilization. Within a chronological framework of political events, attention is given to topics in art, literature, philosophy, and religion.

HI 14, 15 British History 3 - 3 each semester

The first semester covers the development of English government and culture from the earliest times to the reign of Queen Elizabeth I. The second semester covers from 1603 to the present with emphasis on parliamentary government, the industrial and agricultural revolutions, the evolution of the British Empire and Commonwealth, and the position of Britain today.

HI 18 History of Mexico, Central America and the Caribbean 3 - 3

Both HI 18 and 19 survey pre-Columbian and colonial backgrounds, the clash and fusion of cultures, and the evolution of today's Latin American civilizations as they relate to specific geographical areas.

HI 19 History of South America 3 - 3

See HI 18.

HI 20 Introduction to Family History 3 - 3

An introduction to the study of change in the structure and function of the family, especially under the impact of industrialization and urbanization. Emphasis in readings upon the psychological, sociological, and historical evolution of the family as an institution. Interested students may write their own family histories in conjunction with the Anonymous Families History Project of the American Historical Association.

HI 21, 22 United States History I and II 3 - 3 each semester

A survey of United States History beginning with colonial times and continuing through the era of Reconstruction following the Civil War the first semester. The second semester covers from Reconstruction to the present.

HI 23 American Women, 1870 - 1970 3 - 3

Women in modern America, the struggle against discrimination and for the ballot, the history of various women's groups, including working class, black, and immigrant women. Not merely the study of exceptional women but women as housewives, breadwinners, and citizens.

Electives

HI 30 American Colonial History 3 - 3

Exploration, settlement patterns, imperial system, social structure, rise of representative government in America, and the 18th-century wars for empires.

HI 31 U. S. Westward Movement 3 - 3

The movement as a social process and the impact of the West on American development.

HI 32 The American Civil War and Reconstruction 1850 - 1865 3 - 3

Politics, slavery, and Lincoln's rise to power; political, military and diplomatic aspects of the war; failure of reconstruction.

HI 33 The United States, 1900-1945 3 - 3

The Progressive Era, World War I, the "Roaring Twenties", the Great Depression, the New Deal, and World War II.

HI34 Post-War America, 1945-1976 3 - 3

From Truman to Carter: the Cold War, Korea and Vietnam, the counter-culture of the sixties.

HI 35 History of the Money Machine in the West, 1400 - Present 3 - 3

The course gives particular attention to the American experience, 1607 - 1970. The intent is a study in depth of the evolution of money and banking in the modern West towards the service of community interest. In this respect the atypicality of the American development is of much interest.

HI 36 United States Industrial History I 3 - 3

The industrialization and urbanization of the United States from colonial times to 1870.

HI 37 United States Industrial History II 3 - 3

A continuation of HI 36 from 1870 to the present.

HI 38 History of the South 3 - 3

Slavery, the Confederacy, Reconstruction. Development of the Solid South, the Negro, and Civil Rights from a Southern view.

HI 39 Federalist Era 1789 - 1828 3 - 3

Early American nationalism with stress on the first American party system; economic nationalism, and foreign policy declarations. **Prerequisite: HI 21.**

HI 40 Modern German History 3 - 3

Germany since ca. 1500 with emphasis on the last two centuries and Germany's role in international politics.

HI 41 The Frontier in American History 3 - 3

The Frontier studied as a historical, social, economic, and psychological process to determine its impact on American development.

HI 43 U.S. Foreign Relations: The First Hundred Years 3 - 3

Diplomacy of the Revolution, foreign relations of the new nation, the Monroe Doctrine and problems of boundaries and expansion, the Civil War and after to about 1890.

HI 44 The U.S. In World Affairs: 1898 to the Present 3 - 3

The age of imperialism, World War I, the era of "isolation," origins of World War

II, American involvement and wartime diplomacy, breakdown of East-West relations, the Cold War, the Korean and Viet Nam conflicts.

HI 45 American Social and Intellectual History I 3 - 3

The history of ideas in America from the 17th century.

HI 46 American Social and Intellectual History II 3 - 3

A continuation of HI 45.

HI 47 Film as History 3 - 4

An analysis of the issues raised in the use of film as historical evidence. Journalistic and historical accounts of events are compared and contrasted with film treatments, particularly feature films and documentaries.

HI 48 Black America 3 - 3

An investigation of the cultural heritage and historical development of the black man in the United States from his West African origins to the present. Emphasis on understanding of prejudice and race relations.

HI 49 The Republican Era, 1877 - 1912 3 - 3

Major movements of the late nineteenth and early twentieth centuries in United States History including Grangerism, Populism, urbanization, trade unionism, socialism, and progressivism.

HI 50 The American Revolution 3 - 3

The coming of the Revolution, war tactics and strategy, problems of the Confederation period and the American Constitution.

HI 51 American Labor, 1840-1960 3 - 3

A study of the historical development of the patterns, personalities, and social tensions involved in the growth of organized labor and paternalistic government in the United States during the period 1840-1960.

HI 52 The Age of Revolutions 3 - 3

Major political, social, and cultural developments in France, England, and the United States during the age of the American, French, and Industrial Revolutions, 1763-1848. The meaning and applicability of the term "revolution" will be examined, and there will be a series of case studies of topics such as art and politics, romanticism, and the religious revival in England. Extensive use is made of audio-visual materials.

HI 54 Twentieth-Century Europe 3 - 3

From the first World War to the present. Cultural, scientific, and social developments as well as domestic and international politics.

HI 56 Imperial Russia 3 - 3

Founding of the Kievan State; the Mongol, Muscovite, and Imperial Periods to the Revolution of 1905.

HI 57 The Soviet Union 3 - 3

The Bolschevik seizure of power; attempts to implement Marxist theory; institutional development of the state, family education, and religion.

HI 58 Oral History 3 - 3

An introduction to the collection of oral historical experience. Students work on tape-recording such experiences as the depression, immigration, etc. Each student learns the use of the tape recorder, interviewing, and the techniques of indexing and cataloguing.

HI 61 Irish History, 1798 - 1850 3 - 3

The Rebellion of 1798 and the Act of Union; O'Connell and Catholic emancipation; the rise of Irish nationalism, the great famine of 1845-50.

HI 62 Irish History, 1850 to the present 3 - 3

The Home Rule movement; Parnell and the land league; the Celtic revival; the rebellion of 1916 and the civil war; the Republic of Ireland and Ulster in the twentieth century.

HI 63 History and Culture of Puerto Rico 3 - 3

Political social, economic, and cultural development of Puerto Rico from its beginnings to the present. The blending of Indian, African, Spanish, and Anglo-American traditions into a uniquely Puerto Rican culture.

HI 64 Africa 3 - 3

Sub-Saharan Africa from the earliest man to the 1960's. The development of trading empires and African cultures. The

impact of Europe's "scramble for Africa." The struggle for independence and the launching of new nations.

HI 65 Contemporary Latin America 3 - 3

Latin America since World War II. A study of economic, cultural and political trends, with special reference to United States policy toward Castro's Cuba and Allende's Chile. The course will contrast agrarian reform in the Brazilian Northeast, in Bolivia and in Mexico, as well as economic development in Venezuela, Peru and Guyana.

HI 66 Tudor England 1485 - 1603 3 - 3

Political, social and religious developments from Henry VII to Elizabeth I. The Reformation, the rise of Puritanism, foreign affairs, constitutional developments.

HI 67 Stuart England 1603 - 1689 3 - 3

Political, social, religious and constitutional developments from James I to William and Mary. Opposition to the early Stuarts, the civil war, the restoration and revolutionary settlements. Events of Irish and Scottish as well as English history.

HI 80 The Historical Method 3 - 3

An introduction to the historical method with stress on bibliographical aids, historical fallacies, and the theories of history as they have developed. Primarily for history majors.

HI 88 Special Methods in Teaching of History 3 - 3

Special techniques for the teaching of history and their relationship to the principles of general methods. **Prerequisite: IM 24.** Offered each year in the fall semester.

HI 90 Independent Study in History

Open to students majoring or specializing in history with the permission of the supervising instructor and the department. Meetings times and credit by arrangement.

HUMANITIES DEPARTMENT

CHAIRMAN: Reginald O'Neill

The Humanities Department offers courses in art, foreign languages, music and philosophy. These courses may be found under Art, French, German, Music, Philosophy, Russian, Spanish.

HUMAN SERVICES

COORDINATOR AND PROFESSOR:
Donald Isaac
ASSOCIATE PROFESSOR:
David Maloney

The degree of Bachelor of Science in Human Services must include 21 semester hours in Human Services Core courses, which include HS 10, 80, 81, 75; PY 35; twelve semester hours in Human Services Sub-Areas; and 12 semester hours in the related areas of economics, political science, special education, health, recreation, etc., based upon career interests. These are to be worked out and approved by the Human Services faculty. Human Services sub-areas include Corrections, Mental Health, Community Development, Social Work, Welfare, Poverty, School Psychology, Speech and Communication Disorders, Rehabilitation Counseling, Industrial Psychology and Law Enforcement.

This program is designed to provide both conceptual (class work) and experimental (field work) preparation for entry level positions in the Human Services (Social Work, Counseling, Corrections, Probation, School Psychology, etc.) All students share a common core of courses (Intro. to Human Services, Abnormal Psychology, and Field Work in the Behavioral Sciences). Students take additional courses in other departments in accordance with their career goals. This allows for maximum individual choice while still providing a basic background to enable students to go into many graduate programs and/or a variety of job possibilities. Students must work closely with their advisor. It is strongly recommended that students work as volunteers or as employees in community agencies to gain extra experience as well as letters of recommendation for inclusion in their placement folders.

***HS 10 Introduction to Human Services 3 - 3**

Principal goals for the course are to introduce the student to the scope and nature of human service agencies, their intervention models, and their professional staff. Particular focus will be made on the underlying philosophies, issues, and dynamics in social agency functions. Guest lectures from agency representatives, class simulations, agency critiques, and a required volunteer experience repre-

sent the priority activities in the course.

*This course is prerequisite to all Human Services courses.

HS 15 Community Resources 3 - 3

This course will acquaint students with the variety of public (federal, state, and local) and private voluntary non-profit agencies which provide services. Students will learn what services are provided, how to obtain services, how to make referral to these agencies and how the agencies are operated (including staffing, funding and administrative aspects of the agencies). Students will also be able to make more appropriate Field Work plans by knowing of the agencies in advance of Field Work. Prerequisite: HS 10.

HS 20 Delivery of Human Services 3 - 3

This course will deal with social agencies, how they establish their goals, priorities, programs; how they are governed, staffed and financed; and how each of these relate to the needs of the people in the area served. Prerequisite: HS 10.

HS 30 Introduction to Rehabilitation Counseling 3 - 3

An overview of the vocational rehabilitation process in the U.S., including its history and governing federal legislation. Emphasis on the medical, psychological, sociocultural, and vocational factors in rehabilitation of handicapped individuals. This course will focus on the role of the Rehabilitation Counselor as a professional in the rehabilitation process.
Prerequisite: HS 10.

HS 40 Crisis Intervention 3 - 3

This course focuses on the concepts and techniques of Crisis Intervention. Many individuals are faced with such crisis situations as job loss, unwanted pregnancy, divorce, operations, death and dying. Specialized short-term techniques have been developed to help people in these situations. Students will also be required to spend approximately 4 additional hours per week in a crisis center for supervised experiences. The Crisis Center may ask students for a commitment beyond the semester. Prerequisites: HS 10, PY 35.

HS 50 Introduction to Social Work 3 - 3

Social Work is one of the central professions in the Human Services. This course will deal with the history, concepts, basic issues and techniques of social work including casework, group work and community organization activities. Advanced study and career opportunities will also be explored. Prerequisites: HS 10, SO 10.

HS 51 Social Casework 3 - 3

This course will explore casework concepts and techniques as utilized in a variety of settings, e.g. family agencies, mental health settings, hospitals, courts. The focus will be on the casework process with individuals, couples and families. Prerequisites: HS 10, HS 50, PY 35.

HS 52 Social Group Work 3 - 3

This course will focus on social group work as a method in social work; the relationship of social group work to other social work methods and to group therapies. These techniques are used in clinical settings, recreational settings and community organizations. Prerequisites: HS 10, HS 50.

HS 53 Community Organizations 3 - 3

This course will focus on methods used in organizing citizen action groups to bring about change. Principles, methods and techniques of organizing, goal formulation, group maintenance, community planning and strategies will be studied. Prerequisites: HS 10, HS 50.

HS 75 Interviewing Techniques 3 - 3

Skill in interviewing is essential to the development of professional competence in the helping professions. This course is designed to help the student learn about the problems and processes of interviewing while developing basic skills needed to become an effective interviewer. The course will include assigned readings, class discussions, taped interviews, demonstrations, practice sessions in class plus practicum interviewing experiences in an agency during the semester. Prerequisites: HS 10 - Introduction to Human Services, PY 35 - Abnormal Psychology, and Permission of Instructor. HS 75 is required before taking HS 76 Methods of Case Recording and HS 80/81 Field Work.

HS 76 Methods of Case Reporting and Analysis 4 - 5

This course attempts to expose students to the technical and practical skills involved in the process of preparing, recording, presenting, and analyzing individual case reports. Case report applications, as they relate to schools, clinics, social service agencies, the courts, and other human service agencies will be integrated during the course. A supervised practicum in an

approved agency setting (3 hrs/wk minimum) is required. **Prerequisites: HS 10, PY 35, HS 75, and permission of the Instructor.** Students must preregister in the semester prior to the course.

HS 80, 81 Field Work in Human Services 6 - 16, 12 - 30

The purpose of this course is to enable the student to obtain supervised experience working in a Human Services Facility (mental health clinic, hospital, family agency, social agency, welfare, nursing home, probation office, crisis center, recreation center, school counseling office, etc.). These experiences will enable students to apply what they have learned in class, to understand the workings of agencies, and to explore career possibilities in the helping services. Students will work in an agency under the supervision of an agency staff member. In addition to the field experience, there are class meetings to share field experiences. There are two types of placements:

HS 80: students will work in an agency two days a week throughout the school year, beginning in September. 6 credits each semester.

HS 81: a block placement of 30 hours per week for one semester, either Fall or Spring. 12 credits, one semester.

Students must have completed their prerequisites at least 1 semester before taking Field Work and must pre-register with the instructor in the beginning of the semester prior to the semester before they plan to enter an agency, i.e., students planning a Fall placement must have completed their prerequisites by the end of the previous Fall semester and pre-register with the instructor early in the previous Spring. Students must have had previous volunteer experience prior to enrolling in Field Work. **Prerequisites: HS 10, PY 35, HS 75, HS 76, prior volunteer experience and permission of Instructor.**

INDUSTRIAL TECHNOLOGY

CHAIRMAN: George B. James
PROFESSOR: George B. James
ASSOCIATE PROFESSORS: Howard Besnia, Joseph Carpenter, Robert Kokernak, Rene Thomas
ASSISTANT PROFESSORS: Stanley Bucholc, Joseph Farias, Erling Hanson, Edward Martens, Frederick Miller, Jack Wescott
INSTRUCTORS: Robert Allen, James Andrews, Leroy Perry

The Industrial Technology Program includes a common core of experiences as well as preparation of Industrial Arts teachers (Industrial Arts major) and industrial technologists (Industrial Science major). Students are required to elect majors at the end of the Freshman year.

The common core consists of IT 0101, IT 0201, IT 0301, IT 0401, IT 0501 and IT 0601. Two courses, the "Evolution of Industrial Technology" and "Man/Technology/Society" make students aware of the role of technology in our society and culture. The other four courses introduce students to the major technical endeavors of mankind in the areas of Materials, Transformation, Energy and Communications.

Industrial Arts Major

Students are required to complete 67 credit hours in their major which includes 12 credit hours in their common core. A total of 127 credit hours are required for a Bachelor of Science degree in Education.

During the Freshman year, students are required to take a technical mathematics course. At the beginning of the Sophomore year, Industrial Arts majors are required to select two areas of technical specialization: Materials and Transformation, Materials and Energy, Materials and Communications, Transformation and Energy, Transformation and Communications, or Energy and Communications. In each of the two areas of specialization, students are required to take three courses. Three hours of applied chemistry and physics are also required during their Sophomore year.

During the Junior year, students determine their goals related to one area of specialization. To achieve these goals, they work with faculty advisors in selecting modular and semester courses. The students are required to take at least fifteen credit hours to achieve their goals. Nine credits have to be in one area of specialization.

Students enroll in the professional sequence (IT 8001, IT 8101, IT 8201, IT 8301, IT 8401, IT 8501 and IT 8601) at the beginning of the second semester of the Junior year or the first semester of the Senior year depending upon

recommendations of the faculty. To enroll, students must have a 2.5 cumulative index in their major and have successfully completed the First Aid course on campus or an equivalent. Also students must have taken PY 10 and PY 23. PL is required for graduation.

Industrial Science Major

Students are required to complete 66 credit hours in their major which includes 12 credit hours in the common core. A total of 126 credit hours are required for the Bachelor of Science degree in Industrial Science.

Prior to the Sophomore year, Industrial Science students should either take IT 0701 or demonstrate a proficiency in Algebra, Trigonometry, vectors and some analytic geometry. In the Sophomore year students take IT 2601, IT 2701, IT 2801, IT 2901 and IT 3001. In addition students take 8 credit hours of physics and 3 credit hours of computer programming. During the Junior year students take IT 3101, IT 3201, IT 3301 and IT 3401 and 6 credit hours of technical electives. Also 4 credit hours of chemistry are taken. During the Senior year students take IT 8701, IT 8801, and 6 credit hours of technical electives. Students may elect to work in industry as technologists and receive 15 credit hours. This exempts students from IT 8701, IT 8801, and 3 semester hours of technical electives. PY 10, PY 60, and an economics course approved by the major advisor are also required for graduation.

COMMON CORE

IT 0101 Evolution of Industrial Technology 3 - 3

Study of the history of industrial technology, and the qualifications, duties, and responsibilities of related careers.

IT 0201 Man/Technology/Society 3 - 3

Study of universal characteristics of technology, including effects of technology on society and culture. Topics of interest are researched.

IT 0301 Industrial Materials 3 - 6

An overview of selected materials and their properties including laboratory experiences designed to give students an understanding of research with materials.

IT 0401 Transformation 3 - 6

Introduction to the various aspects (design, industrial process, fabrication) of transformation.

IT 0501 Energy 3 - 6

An overview of energy technology dealing with its technical aspects and social-cultural impacts.

IT 0601 Communications 3 - 6

Introductory experiences in communications through the design and production of mass-media messages, with emphasis on the technology of communications.

INDUSTRIAL ARTS

Required courses for each thematic area selected for specialization.

MATERIALS

IT 1001 Service Requirements of Materials 3 - 6

A study of the problems concerning the environmental effects on the properties and behavior of materials and the procedures which can be employed to minimize those environmental influences. **Prerequisite: IT 0301.**

IT 1101 Foundamentals of Materials 3 - 6

A study of how the properties of materials are determined by their molecular bonding and atomic structure or changed by heat treatment and machining. Equilibrium and phase diagrams will be studied. Atomic lattice patterns and their influence in the determination of properties are an integral part of this course. **Prerequisite: IT 0301.**

IT 1201 Development of Industrial Materials 3 - 6

A study of procedures for converting raw materials into semi-finished products with consideration of properties developed as results of processing. **Prerequisite: IT 0301.**

TRANSFORMATION

IT 1401 Designing and Planning Transformation Conversions 3 - 6

Elements of product design are experienced through problem solving. Drafting, human engineering and product analysis are incorporated in design and construction of prototypes. **Prerequisite: IT 0401.**

IT 1501 Wood Fabrication Systems, Procedures and Techniques 3 - 6

Furniture is designed, constructed and finished. Advanced fabrication concepts and techniques are studied. Further instruction on production systems is given. **Prerequisite: IT 0401.**

IT 1601 Metal Fabrication Systems, Procedures and Techniques 3 - 6

Study of mass-production theory, systems, and procedures in metal. **Prerequisite: IT 0401.**

ENERGY

IT 1801 Mechanical Energy Systems 3 - 6

An introduction to conversions of chemical energy to mechanical motion in internal-combustion engines. Emphasis is on multi-cylinder, spark-ignition engines. **Prerequisite: IT 0501.**

IT 1901 Electrical Energy Systems 3 - 6

This course deals with systems and components employed in generation, transmission and conversion of electrical energy. **Prerequisite: IT 0501.**

IT 2001 or IT 5901 Pneumatic and Hydraulic Energy Systems (Fluid Dynamics) 3 - 6

Flow phenomena of compressible and incompressible fluids are studied, including fluid statics and dynamics, boundary layers, conduit fluid flow, dynamic drag and lift.
Prerequisites: IT 0501 and IT 0701 or a Technical Mathematics course.

COMMUNICATIONS

IT 2201 Communication Message Layout and Design 3 - 6

Experiences in formulation of messages relating to education, industry and business with emphasis on technical drawing and layout; also consideration of effects on mass audiences. **Prerequisite: IT 0601**

IT 2301 Communication Message Conversion and Production 3 - 6

Production and evaluation of messages utilizing graphic arts and photography. **Prerequisite: IT 0601 or permission of Instructor.**

IT 2401 Electronic Communications System 3 - 6

Electrical fundamentals and applications in methods of communication involving thermal, electromagnetic, photoelectric and solid state devices. **Prerequisite: IT 0601.**

ELECTIVES

Listed below are some of the electives. The electives are in the process of being finalized.

Some of the electives consist of modular courses. These courses are open to any student in the College as long as prerequisites are not required and there are openings. Students enrolled in Industrial Technology have first choice. All modular courses are five weeks long unless otherwise specified. They are offered during the same time block. Hence a student can select three modular courses during the same time block.

MATERIALS

IT 3501 Composite Materials 3 - 6

An investigation of materials which contain two or more components, which combine to produce improved characteristics. Fiberglass-reinforced plastics, reinforced concrete, steel-belted tires and materials of similar nature are studied.

IT 3511 Recycling of Materials 3 - 6

A study of the processes utilized in rendering waste products, used materials and scrap into re-usable materials. Industrial visits will be taken to observe different recycling processes. Tests to determine equality of recycled items, in comparison with original materials, are included.

IT 3521 Wood Technology 3 - 6

A course in which students investigate defects which occur in wood and how these affect the grading of lumber. The process of drying lumber, its effects on the material, and methods of controlling the process to minimize ill effects are stressed. The processing of various wood products is included.

IT 3531 Plastics Technology 3 - 6

An investigation of the rapidly expanding area of plastics, how they are produced, their merits and limitations. Tests are conducted to confirm reference data and to promote a better understanding of various plastics and products made from them. **Prerequisite: Some background in Chemistry essential.**

IT 3541 Corrosion and Corrosion Prevention 3 - 6

A course designed to investigate one of man's most costly problems, its causes, and methods used to minimize the damage and expense due to corrosion.

IT 3551 Biomaterials 3 - 6

An investigation of materials derived from living organisms. Typical examples are wood, leather, paper, glue, and fibers. Laboratory research is conducted to investigate selected properties and methods to extend their usefulness.
Prerequisites: IT 0301, IT 1201 or permission of Instructor.

IT 3601 Adhesives and Anaerobics 1 - 6

A course designed to study, use and evaluate adhesives and anaerobics commonly used in the assembly of parts and to determine their value under varying environmental conditions. Students may specialize in the study of adhesives related to a specific material (wood, metal, plastic).

IT 3611 Organic and Inorganic Finishes 1 - 6

The study of finishes commonly applied to wood, metal, and plastics. Included are paints, stains, varnishes, lacquers, electroplating, chemical coatings, chemical conversions finishes and dipping compounds. Students may specialize in the study of finishes related to a specific material (wood, metal, plastic).

IT 3621 Natural and Synthetic Fibers 1 - 6

The students will study textiles, the various fibers utilized, and the specific properties of each type of fiber. Both natural and synthetic fibers will be included.

IT 3631 Paper and Paper Products 1 - 6

This course concerns itself with various papers, the materials used in their manufacture, and the resulting properties achieved. Tests are conducted to determine the merits of different papers under specific conditions. Products derived from paper, including recycled material, are included in this study.

IT 3641 Water and Waste Water 1 - 6

The natural process of water purification and its limitations will be studied. Investigation is conducted to determine if pollution exists and what preventive or corrective measures can be taken to alleviate the problem. Visits to area and industrial installations will be included.

IT 3651 Fuels and Lubricants 1 - 6

A course designed to analyze petroleum products from its unrefined state through the refining process for consumer use. The properties of the material, including the additives used to modify or control these properties, are investigated.

IT 3661 Ceramic Materials and Glasses 1 - 6

A course designed for the study, testing and evaluation of clays, glasses, cements and aggregates, either natural or synthetic, which constitute the basis of ceramic industries. This includes tests for abrasion resistance, reflectivity, adhesion, cohesion, staining, weatherability shock resistance, and others which may be pertinent.

IT 3701 Experimental Stress Analysis 3 - 6

The analysis of stresses in a product or a structure which result from design, applied strains, assembly of component parts, environmental changes or other factors. Photoelastic analysis will be used. Direction and concentration of stress will be determined by using strain gages.

IT 3711 Heat Treatment of Metals 3 - 6

This course covers the study of ferrous and non-ferrous metals commonly subjected to heat treatment to modify their physical properties. Hardening, tempering, annealing, and surface treatments are studied.

IT 3721 Product Analysis and Evaluation 3 - 6

A course designed to test and evaluate the ability of a product to provide its intended service or function. Destructive and nondestructive tests are employed. **Prerequisite: IT 0301.**

IT 3731 Physical Metallurgy 3 - 6

A study of metals, their properties and how they can be modified. Equilibrium and phase diagrams are introduced as needed. A variety of laboratory experiences are provided.
Prerequisite: IT 1201

IT 5601 Metallography 3 - 6

Principles of metallography are studied and applied in the laboratory, including photomicrography. Structures, alloy compositions, and inclusions are investigated. **Prerequisite: IT 1201.**

IT 5701 Research in Industrial Materials 3 - 6

The students are required to select a material and conduct an in-depth study. Class reports are required. Individual initiative and efficient use of time are stressed.
Prerequisites: IT 0301, IT 1001, or permission of Instructor.

IT 9101 and 9111 Directed Study in Materials I and II 3 - 6

Student performs independent research and development under guidance of a faculty member. Investigation to be individually arranged with faculty member and approved by Department Chairman and appropriate Dean. **Prerequisites: (a) any course considered by faculty member necessary for successful completion of the study; (b) a plan of study and activities approved by faculty member.**

TRANSFORMATION

(See IT 3501, IT 3521, IT 3531, IT 3551, IT 3711, and IT 3731 in the materials area for possible electives related to transformation.)

IT 4001 Design of Transformation Products 3 - 6

The physical and mental process for developing a three-dimensional object that is perceived as being pleasing to others is stressed. **Prerequisite: IT 1401.**

IT 2801 Technical Drawing 3 - 6

This course will include lettering, dimensioning, orthographic projection, symbols, sectioning, isometric, and auxiliary views. Problem development and blueprint reading will be stressed.

IT 4021 Product Illustration and Communication 3 - 6

The preparation of product illustrations and renderings for individual presentation, technical literature, or newspaper and magazine advertisement. Isometric and perspective systems are used with various shading techniques such as inking, airbrush, and commercially-prepared media.
Prerequisites: IT 1401, IT 2801, or permission of Instructor.

IT 4031 Production Furniture Fabrication 3 - 6

Emphasis on the production of a piece of furniture employing the use of jigs, fixtures and other suitable mass production procedures. Appropriate methods of production management are employed. **Prerequisites: IT 0401, IT 1501.**

IT 4041 Machine Processes 3 - 6

The design and fabrication of metal products utilizing machine tools, metalworking processes and welding. **Prerequisites: IT 0401, IT 1601.**

IT 4051 Jig and Fixture Design and Construction 3 - 6

Instruction in the principles of jig and fixture design are covered. The students construct simple jigs and fixtures for various applications.
Prerequisites: IT 0401, IT 1601.

(See IT 3601, IT 3611, IT 3621, and IT 3661 in the materials area for possible electives related to transformation.)

IT 4101 Modeling Techniques 1 - 6

Three-dimensional scale model development and construction for presentation of design products, processes or systems. Emphasis is on the uses of models, construction techniques and appropriate material representation.
Prerequisite: IT 1401.

IT 4111 Wood Identification. 1 - 6

The identification of common hardwoods and softwoods is studied. Cell structures of ring porous, semi-ring porous, diffuse porous and non-porous woods are compared. **Prerequisites: IT 0401, IT 1501.**

IT 4121 Wood Turning 1 - 6

Instruction and laboratory experiences are designed to provide the student with basic knowledge and techniques of face plate and spindle turning. Advanced industrial methods are also studied. **Prerequisites: IT 0401, IT 1501.**

IT 4131 Patternmaking 1 - 6

Experiences are provided in the principle practices of fabricating wood patterns and core boxes for the casting of tools and machines.
Prerequisites: IT 0401, IT 1501

IT 4141 Oxyacetylene Welding 1 - 6

Instruction and laboratory experiences are designed to provide students with the basic knowledge and techniques of welding, cutting, and braxing using oxyacetylene welding equipment.

IT 4151 Inert-Gas Arc Welding 1 - 6

Instruction and laboratory experiences are provided to give students the basic knowledge and welding techniques of inert-gas arc.

IT 4161 Arc Welding 1 - 6

Instruction and laboratory experiences are designed to provide students with the basic knowledge and techniques of AC and DC welding and cutting.

IT 4171 Non-Ferrous Casting Techniques 1 - 6

Students acquire basic knowledge and application of casting techniques used in the non-ferrous casting industry. Field trips to casting industries are included in the course.

IT 4181 Lathe Mass Production Techniques 1 - 6

Instruction and laboratory experiences are designed to provide students with basic knowledge and techniques pertaining to the tooling and operation of turret and tracer lathes. **Prerequisite: IT 1601.**

IT 4191 Planning Transformation Support Systems 2 - 6

Introduction and application of planning and control systems for production are studied. Planning systems such as PERT production flow, inventory control, quality control systems and material handling are covered. **Prerequisite: IT 0401.** (10 weeks)

IT 4201 Numerical Control 1 - 6

Introduction and laboratory experiences are designed to provide students with the basic knowledge and techniques of programming and operations of the tape-controlled milling machine. **Prerequisite: IT 1601.**

IT 4211 and IT 4221 Machine and Tool Maintenance I and II 1 - 6

Experiences are provided in the principles, procedures and techniques of maintaining wood-working and/or metal-working machines and hand tools. **Prerequisites: IT 0401, IT 1501 and/or IT 1601.**

IT 4301 Advanced Metal Fabrication Systems 3 - 6

Specialized processes in the metal working industry will be studied. Laboratory experiences will include performing operations with tool cutter grinders, indexing heads, numerical control millers, turret lathes, and tracer lathes. **Prerequisites: IT 0401, IT 1601. Students who have taken IT 4181 and IT 4201 are not eligible.**

IT 4311 Modern Industrial Processes 3 - 6

A study of modern industrial fabrication processes including finishing. Emphasis is on illustrating processes through first-hand experiences or construction of display models. **Prerequisites: IT 0401, IT 1401, IT 1501, IT 1601.**

IT 4321 Structures 3 - 6

Study of principles of structural design. Includes drafting, fabrication of actual structures and models, and testing to determine reactions, shears, bending moments, and stresses. **Prerequisites: IT 0401, IT 1401, IT 1501, IT 1601.**

IT 4331 Technological Forecasting 3 - 6

Introduction and exploration of the field of Futuristics and Forecasting. Emphasis is on the development in government and industry, and basic techniques used in technological probability, anticipation and assessment.

IT 4341 Engineering Drawing 3 - 6

This course includes orthographic projection, intersections, developments, revolutions, axonometrics, assembly details, and pictorial drawings. **Prerequisites: IT 2801.**

IT 9201 and IT 9211 Directed Study in Transformation I and II 3 - 6

Students perform independent research and development under guidance of a faculty-member. Investigation to be individually arranged with faculty member and approved by Department Chairman and appropriate Dean. **Prerequisites: (a) any course considered by faculty member necessary for successful completion of the study; (b) a plan of study and activities approved by faculty member.**

ENERGY

IT 4501 Alternate Energy Sources 3 - 6

The study of direct uses of sunlight to supply household energy needs. The students build and test both commercial and laboratory-made devices.

Prerequisites: IT 0501, IT 1801, IT 2001 or permission of Instructor.

IT 4511 Advanced Alternate Energy Sources 3 - 6

Course is limited to students who have demonstrated the ability and desire to continue the research and development of a solar energy system that showed promise in IT 4501. **Prerequisites: IT 4501 or permission of Instructor.**

IT 4521 Internal-Combustion and Diesel Engines 3 - 6

The students test, modify, and retest an engine. Diesel theory, injectors, and pumps are included. **Prerequisites: IT 1801 or permission of Instructor.**

IT 4531 Advanced Electrical Energy Systems 3 - 6

This course emphasized the study of dynamos, their characteristics, applications, and control. Contemporary problems in electrical energy systems are covered. **Prerequisites: IT 0501, IT 1901.**

IT 4541 and IT 4551 Advanced Energy Systems I and II 3 - 6

The class designs, constructs, and tests a full-scale energy system of mutual interest to the class and the Instructor. **Prerequisites: IT 1801, IT 1901, IT 2001, or permission of Instructor.**

(See IT 3651 in the materials area for possible elective related to energy.)

IT 4601 Nuclear Power Generation 1 - 6

An introduction to the role of nuclear fission in meeting society's energy needs. A qualitative understanding of the fission process and its implications for the utilization of nuclear energy is developed. Emphasis is given to reactor safety, environmental impact and the economics of nuclear power. Models and displays are constructed.

IT 4611 Numerical Problem Solving in Energy 1 - 6

This course is designed to develop the computational skills necessary for the solution of technical problems in the analysis and evaluation of electrical, mechanical, fluid, and alternate energy systems. **Prerequisites: Technical Mathematics course or IT 0701.**

IT 4621 Heat Technology 1 - 6

Today's thermal energy systems will be studied. Emphasis will be on their governing principles.

SEMESTER COURSES

IT 4801 Flight 3 - 6

The history and principles of subsonic and supersonic flight, rocket propulsion and jet engines. Includes construction of models for study of aeronautical phenomena.

IT 9301 and IT 9311 Directed Study in Energy I and II 3 - 6

Students perform independent research and development under guidance of a faculty member. Investigation to be arranged with faculty member and approved by Department Chairman and appropriate Dean. **Prerequisites: (a) any course considered by faculty member necessary for successful completion of the study; (b) a plan of study and activities approved by faculty member.**

COMMUNICATIONS

IT 5001 Advanced Design 3 - 6

Experimental design projects using the two and three dimensional approaches. The design of communications forms will make use of the five senses. **Prerequisites: IT 2201, IT 2301.**

IT 2801 Technical Drawing 3 - 6

This course will include lettering, dimensioning, orthographic projection, symbols, sectioning, isometric, and auxilary views. Problem development and blueprint reading will be stressed.

IT 5011 Product Illustration and Communication 3 - 6

The preparation of product illustrations and renderings for individual presentation, technical literature or newspaper and magazine advertisement. Isometric and perspective systems are used with various shading techniques such as inking, airbrush, and commercially-prepared media. **Prerequisites: IT 1401, IT 2801 or permission of Instructor.**

IT 5021 Calligraphy 3 - 6

A brief historic introduction to the arts of the Merovingian and Carolingian Miniscules that preceded the modern hand lettering of today. The art of the broad nib pen and wide brush will be emphasized. Students develop a series of plaques, signs and charts.

IT 5031 Illustration 3 - 6

All forms of illustration are studied; line, halftone, technical and non-technical color, pencil, ink, paint, and mechanical tints and tones. Techniques used are airbrush, rubbed on lettering, and proportional enlargement and reduction.

IT 5041 Art of the Book 3 - 6

A manuscript is developed in dummy form identifying type of paper, illustrations, letter form and page layout. Type is prepared and photographed. Printed pages are collated, hand sewn or end bound. The finished body is bound and finished

IT 5051 Offset Lithography 3 - 6

The students study the lithographic form of printing as it is used in modern industry. The majority of the course is spent in the darkroom and setting up and running offset presses. Concepts include line copy, halftone, special effects, diffusion transfer and density. Roles students will pursue are designer, photographer, flat-stripper, platemaker, press operator, and binder.
Prerequisite: IT 2301.

IT 5061 AC Fundamentals and Applications 3 - 6

Principles of AC electricity and electromagnetism and their applications in circuitry, motors, transformers and other devices. **Prerequisite: IT 2401.**

IT 5071 Electronic Equipment and Devices 3 - 6

Study of a variety of electronic circuitry and equipment including power supplies, test equipment, metering, and sound measurement. **Prerequisite: permission of Instructor.**

(See IT 3631 in the materials area as a possible elective related to communications.)

IT 5101 Visual Illumination and Chiaroscuro 1 - 6

Experimentation with light and shade using professional stage-lighting equipment. Students experiment with individual shadow box set-ups in a light controlled room. Nuances of shadow and form are observed and sketched in final renderings.

IT 5111 Graphs and Charts 1 - 6

Designed to develop awareness of various forms of graphs and charts to facilitate in proper forms for presentation of specific data. The student will develop knowledge and skills required in the execution of a chart graph. Emphasis is placed on lettering, shading, line work and color. **Prerequisite: IT 2801.**

IT 5121 Perspective Drawing 2 - 6

Perspective drawing is a geometric method by which a "picture" can be projected on a picture plane. This form of drawing approaches the results of a photograph. One, two, and three point perspective are covered, with an introduction to shadows to add realism. Although rarely used by engineers, it is extensively employed by architects, artist-draftspersons, and illustrators. (10 weeks) **Prerequisite: IT 2801.**

IT 5131 Developments and Intersections 1 - 6

This course covers two phases of engineering drawing-developments and intersections. Students construct fullsize layouts of different shaped surfaces. Applications of developments and intersections are found in fabrication of sheetmetal and plate structures, patternmaking, heating and air-conditioning industries, and packaging field. **Prerequisite: IT 2801.**

IT 5141 Boat Lofting 1 - 6

The fundamentals of boat line drawing, boat lofting and layout are presented in a simple manner. Students will transfer data from offset tables to construct fullsize members. **Prerequisite: IT 2801.**

IT 5151 Automatic Platen Press Operation 1 - 6

Students set up and operate two types of automatic platen presses, the Heidelberg and the Miehle 45. The students also work with the linotype. Operations include scoring die-cutting, perforation and advanced hot-metal imposition. **Prerequisite: IT 2301.**

IT 5161 Silk-Screen Processes 1 - 6

Students work with both hand-cut stencils and photo-direct emulsions. Emphasis is on multiple color registration and halftoning. **Prerequisite: IT 2301.**

IT 5171 Crayonstone Lithography 1 - 6

Students grind and prepare their stones, develop and transfer their illustrations to the stones, draw and shade on the stones and print their illustrations.

IT 5181 Hand Book Binding 1 - 6

The art of inlaid colored leathers, gold stamping, and decorating of quarter-half and full-bound volumes of books is developed. Students recover and case-bind volumes of their own choosing.

IT 5191 Vacuum-Tube Fundamentals 1 - 6

Principles, operation and applications of diodes, pentodes and special purpose tubes. **Prerequisite: IT 2401, IT 5061.**

IT 5201 Solid-State Fundamentals 2 - 6

Principles, operation and applications of diodes, transistors and other solid-state devices. (10 weeks)
Prerequisites: IT 2401, IT 5061.

IT 5211 Communication and Innovation 1 - 6

Introduction to the factors influencing the adoption and use of products by the public. Emphasis on how individual communication and mass advertisement aids the introduction of ideas and products in the marketplace.

IT 5221 Developments and Issues in Communication Technology 2 - 6

Exploration of key and current technical developments in communication technology. Emphasis on the basic operation use and assessment of new developments and their effects. (10 weeks)

IT 5231 Topographic Drawing 1 - 6

The construction of maps designed to describe in detail features of the earth's surface, natural and man-made. **Prerequisite: IT 2801.**

IT 5241 Mechanisms 2 - 6

Mechanisms is the study of motion in machines. It includes (a) the analysis of displacement, velocity, and acceleration and (b) the design of linkages, cams, gears, and other machine components. (10 weeks) **Prerequisite: IT 2801.**

IT 5251 Nomography 1 - 6

Graphical representation of mathematical laws and relationships. It includes the study, design and practical use of functional scales, conversion charts and parallel scales. **Prerequisite: IT 2801.**

IT 5261 Structural Drawing 1 - 6

A branch of drawing which includes layout and detail drawings related to the design and construction of building of bridges and similar structures in which steel, timber, concrete and other building materials are used. Standard practices, conventions, and steel-construction manuals are studied and applied to the drawings. **Prerequisite: IT 2801.**

IT 5271 Machine Repair of Graphic Communication Equipment 1 - 6

Students will trouble shoot and make repairs graphic communications teachers have to do. **Prerequisite: permission of Instructor.**

IT 4341 Engineering Drawing 3 - 6

This course includes orthographic projection, intersections, developments, revolutions, axonometrics, assembly details, and pictorial drawings. **Prerequisite: IT 2801.**

IT 5301 Architectural Drawing 3 - 6

Students design a practical residential structure, conforming to standard practices and building codes. Technical skills are developed enabling students to communicate ideas. Topics include materials of construction, history and development of various styles, orientation of house on lot, loads, and design of structural members. Field trips and available films are used. **Prerequisite: IT 2801.**

IT 5311 Descriptive Geometry 3 - 6

Descriptive geometry is concerned with graphical representation and the solution of problems using spacial relationship of points, lines, and planes by means of projections. **Prerequisite: IT 2801.**

IT 5321 Production Printing 3 - 6

Emphasis is on scheduling and production of contracted jobs. The course is designed to allow serious students to apply their previous instruction in a controlled, industrial type setting. Enrollment is limited to ten students. **Prerequisites: IT 5051 and permission of Instructor.**

IT 5331 Industrial Electronics 3 - 6

Study of applications of electronic principles in devices and equipment involving thermoelectronics, photoelectrics, electromagnetics, solid-state, welding and motor control, etc. **Prerequisite: permission of Instructor.**

IT 5401 Process Color Separation 1 - 6

Students experience the direct screening process obtaining four separation negatives with masks. The negatives are printed by means of a color key. **Prerequisite: IT 5051.**

IT 5411 Photographic Testing 1 - 6

Students test various developers and photographic emulsions. Included are tests of emulsion speed, color sensitivity, and fidelity. **Prerequisite: permission of Instructor.**

IT 5421 AM Reception 2 - 6

Principles of AM reception and analysis of the superhet receiver (10 weeks). **Prerequisites: IT 5191, IT 5201.**

IT 5431 FM Reception 1 - 6

Principles of FM reception and their application in FM circuitry. **Prerequisite: IT 5421.**

SEMESTER COURSES (15 weeks)

IT 9401 and IT 9411 Directed Study in in Communications I and II 3 - 6
Student performs independent research and development under guidance of a faculty member. Investigation to be arranged with faculty member and approved by Department Chairman and appropriate Dean. **Prerequisites: (a) any course considered by faculty member necessary for successful completion of the study; (b) a plan of study and activities approved by faculty member.**

RELATED ELECTIVES

IT 6501 Problems of Mechanical Maintenance 3 - 6
A course designed to investigate problems encountered in the maintenance of mechanical equipment. Topics covered are lubrication, bearing installation, replacement of parts, safety, and color dynamics.

IT 6601 Introduction to Safety and Health 3 - 6
Introduction to the latest occupational safety and health standards and to provide opportunity for the student to perform practical inspections, complete reports, and recommend corrective measures to ensure safe and healthful conditions.

IT 6701 Industrial Arts for Special Education 3 - 6
Fundamentals of planning and constructing teaching aids and projects are stressed. Knowledge of tools, machines, and processes is covered.

IT 6801 Industrial Arts in the Elementary Classroom 2 - 4
Students receive practical experience with elementary students at the McKay Campus Teacher Education Center organizing, integrating, and implementing industrial arts activities. Instruction related to tools, materials and processes applicable to elementary Industrial Arts activities is given.

GENERAL EDUCATION ELECTIVES

SEMESTER COURSES

IT 7001 Ceramics 3 - 6
Course includes throwing on the wheel and glazing techniques, with strong emphasis on different sculptural forms.

IT 7101 Leatherwork 2 - 4
Fundamentals of carving and decorating leather are covered including traditional carving, figure carving, and "nature" stamping. Items which can be made include key cases, coin cases, wallets, belts, and hand bags.

IT 7201 Copper Enameling 2 - 4
Students experience techniques of firing enamels (including lamps and threads) on copper. Processes studied are sgraffeto, trailing, and stencilling.

PROFESSIONAL (REQUIRED FOR ALL INDUSTRIAL ARTS MAJORS)

IT 8001 Teaching-Learning Process in Industrial Arts 2 - 20
The teaching-learning process is diagrammed and each element is studied. (3 weeks)

IT 8101 Methods of Teaching Industrial Arts 4 - 20
A practicum involving short - and long-range methods for teaching Industrial Arts. Ancillary activities are included. (6 weeks)

IT 8201 Field Experience and Unit Development in Industrial Arts 4 - 20
College students will observe and assist in Public School Industrial Arts classes. Based upon their classroom experience, the students will plan units of instruction. (6 weeks)

IT 8301 and IT 8401 Student Teaching in Industrial Arts I and II 5 - 20
Experience in planning and implementing instructional strategies in a public-school setting. Requirements include self-evaluation.

IT 8501 Professional Study and/or Field Study 3 - 15
Independent study in methods of teaching industrial arts and/or curriculum development. **Prerequisite: Approved contract detailing study and activities.**

IT 8601 Seminar 3 - 3
Opportunity to formulate concepts of industrial arts education and develop a working knowledge of principles and practices of industrial arts administration.

INDUSTRIAL SCIENCE

REQUIRED COURSES

IT 0701 Technical Analysis I 3 - 3
Development of computational skills used in solving problems involving polynomials, equations, trigonometry and vectors in the technical areas of mechanics, electronics, and fluid dynamics.

IT 2601 Technical Analysis II 3 - 3
Continuation of IT 0701 Technical Analysis I. Topics covered are logarithmic and exponential equations, complex numbers, statistical analysis, and an introduction to the derivative. Applications in the areas of experimental data reduction, vibration analysis, motion of a particle, and practical optimization problems are stressed. **Prerequisites: IT 0701 or permission of Instructor.**

IT 2701 Laboratory Techniques 3 - 6
Skill development in the use of tools and machines, glass-blowing, welding and brazing necessary for the construction of wood, metal, plastic and ceramic prototypes. **Prerequisite: IT 2601.**

IT 2801 Technical Drawing 3 - 6
This course will include lettering, dimensioning, orthographic projection, symbols, sectioning, isometrics and auxillary views. Problem development and blueprint reading will be stressed.

IT 2901 Introduction to Experimentation 3 - 6
Emphasis is on the accumulation and evaluation of experimental data. Topics include literature surveys, project organization and management, types and uses of instrumentation, instrument accuracy, statistical analysis of data, design of experiments, and report-writing techniques. **Prerequisite: IT 2601.**

IT 3001 Circuit Theory 3 - 6
Principles of electric circuits and their applications to analysis and synthesis of linear circuits and characteristics of simple electric machines. **Prerequisites: IT 0701; PH 1401 may be taken concurrently.**

IT 3101 Engineering Experimentation I 3 - 6
Activities required of junior technicians in industry are simulated. Students construct and assemble laboratory apparatus and perform tests on that apparatus. **Prerequisites: IT 2601, IT 4011, IT 3001, IT 2901, PH 1401.**

IT 3201 Engineering Experimentation II 3 - 6
Continuation of IT 3101, Engineering Experimentation I. **Prerequisite: IT 3101.**

IT 3301 Materials Technology 3 - 4
Topics include atomic bonding, atomic arrangements, structural imperfections, electronic structures and processes, phases and reaction rates and stability of materials in service environments. **Prerequisites: IT 2601, PH 1401, CH1201 taken concurrently.**

IT 3401 Statics and Dynamics 3 - 3
Study of laws of static equilibrium of real bodies and fundamental principles of motion. Includes beam and structural analysis, friction, centroids, and Newtonian motion. **Prerequisite: IT 2601.**

TECHNICAL ELECTIVES

IT 5501 Strength of Materials 3 - 6
An introduction to the behavior of real materials under the influence of forces and couples. Axial, shear, torsional and flexural stresses and strains are determined.

IT 5601 Metallography 3 - 6
Principles of metallography are studied and applied in the laboratory, including photomicrography. Structures, alloy compositions, and inclusions are investigated. **Prerequisites: IT 3301 or permission of Instructor.**

IT 5701 Research in Industrial Materials 3 - 6
The students are required to select a material and conduct an in-depth study. Class reports are required. Individual initiative and efficient use of time are stressed. **Prerequisites: IT 1301, IT 3301, or permission of Instructor.**

IT 5801 Thermal Technology 3 - 4
The laws of thermal energy and heat transfer are studied, including specific heats, thermal conductivities, gas and steam cycles, conduction, convection and radiation. **Prerequisite: IT 2601.**

IT 5901 Fluid Dynamics 3 - 6
(Same as IT 2001)
Flow phenomena of compressible and incompressible fluids are studied, including fluid statics and dynamics, boundary layers, conduit fluid flow, dynamic drag and lift. **Prerequisite: IT 2601.**

IT 6001 Digital Electronics 3 - 6
An introduction to techniques of analyzing and synthesizing digital processors. Emphasis in design work is on IC technology.

IT 6101 Electronics 3 - 6
Introduction to electronic circuits. Students learn to synthesize simple circuits and to utilize them as components of more complex systems. **Prerequisite: IT 3001.**

IT 6201 Control Theory 3 - 6
Introduction to control theory utilizing examples of mechanical, fluidic, electronic and hybrid control systems. Emphasis is on design utilizing the project approach. Prerequisites: **IT 5901, IT 6001.**

IT 6301 Design of Machine Elements 3 - 3
Introduction to design principles and failure modes for various mechanical components. Includes static and fluctuating loads for brittle and ductile materials, fatigue stress concentrations. Prerequisites: **IT 4011, IT 5501.**

IT 9501 and IT 9601 Directed Study in Industrial Science 3 - 6
Student performs independent research and development under guidance of a faculty member. Investigation to be individually arranged with faculty member and approved by Department Chairman and appropriate Dean. **Prerequisites: (a) any course considered by faculty member necessary for successful completion of the study; (b) a plan of study and activities approved by faculty member.**

PROFESSION (REQUIRED FOR INDUSTRIAL SCIENCE MAJORS)

IT 8701 Directed Assistance Research Experience I 6 - 12
(D.A.R.E.)
Students participate in research and development projects under the direction of faculty. Equipment is constructed and experiments performed. **Prerequisites: IT 3201, IT 3301, PH 1401, CH 1301.**

IT 8801 Directed Assistance Research Experience II 6 - 12
(D.A.R.E.) Continuation of D.A.R.E. 1.
Prerequisite: **IT 8701**

MATHEMATICS

CHAIRMAN: Robert Clark
PROFESSOR: Ruth Butler
ASSISTANT PROFESSORS: Robert Bentley, Robert Clark, Nicholas Copoulos, Ernest Fandreyer, Donald Freeburg, Gerald Higdon, Barry Light, David Thomas

The Bachelor of Science and a Bachelor of Arts in Mathematics must include MA 23, 24, 25, 26, 33, 34, and at least fifteen additional semester hours of advanced mathematics courses, at least nine of which must be at the 40 level. 90 level undergraduate or 800 level graduate courses may be substituted for 40 level courses. The Bachelor of Arts degree requires foreign language proficiency at the second year college level.

A Bachelor of Science in Education, Secondary, in Mathematics must include MA 12, 23, 24, 25, 26, 30, 33, 34, 37 and at least six additional semester hours of advanced mathematics courses at the 30 or 40 level. 90 level undergraduate or 800 level graduate courses may be substituted for 40 level courses. The major must also include ED 61, IM 24, PY 10, 23, 75, MA 81, and ED 87.

MA 10 Introduction to Mathematics 3 - 3
An elementary course intended to acquaint the student with the nature of mathematical activity such as inductive and deductive reasoning, problem solving, etc.

MA 11 Elementary Statistics 3 - 3
Elementary statistical and probabilistic concepts and techniques are studied to provide insight into types of statistical thinking which pervade contemporary life. This course is intended for students majoring in fields other than mathematics or science.

MA 12 Functions 3 - 3
Intended as a preparation for the study of calculus. Topics include the real numbers equations and inequalities, analytic geometry, and polynomial, trigonometric, exponential and logarithmic functions.

MA 13 Finite Mathematics 3 - 3
Selected topics from vector algebra, matrix theory, combinatorics, game theory, linear programming, graph theory, set theory, and Boolean Algebra.

MA 14 Technical Mathematics 3 - 3
Applications of elementary mathematics essential to the study of modern technology.

MA 15 Introduction to Mathematical Thought 3 - 3
Intended to introduce mathematics as the science of deductive reasoning. Topics include elementary set theory, logic, techniques of proof, basic properties of the real number system, mathematical induction, and axiomatic systems.

MA 17 Applied Statistics I 3 - 3
Methods of data organization and interpretation, sampling, probability, estimation and testing are applied to areas including biology, business, medicine, economics, and education.

MA 18 Applied Statistics II 3 - 3
Methods of statistical inference are used in linear regression, analysis of variance and experimental design. **Prerequisite:** MA 17.

MA 20 Informal Geometry 3 - 3
An intuitive and non-axiomatic study of basic geometric objects and concepts. Topics studied vary but are chosen for their intuitive appeal as well as their geometric significance.

MA 21 Analytic Geometry 3 - 3
A study of geometry of the plane and three dimensional space emphasizing the interaction of algebraic and geometric concepts.

MA 22 Calculus for the Social and Life Sciences 3 - 3
A survey of those portions of one and several variable calculus most applicable to problems in business, the social sciences and biology.

MA 23 Calculus I 3 - 3
The derivative of a function, methods of differentiation and applications.

MA 24 Calculus II 3 - 3
The Riemann Integral, methods of integration, and applications.

MA 25 Abstract Algebra I 3 - 3
A study of algebraic structures including groups, rings, and fields.

MA 26 Linear Algebra 3 - 3
Topics include the algebras of vector spaces, linear transformations and matrices with applications.

MA 29 Computer Applications for Calculus 3 - 3
A computational approach to the fundamental concepts studied in calculus. Topics may include functions, limits, derivatives, finding roots, integrals, differential equations, sequences, and series. **Prerequisite: programming experience.**

MA 30 Geometry I 3 - 3
A formal study of basic concepts in geometry and the foundations of Euclidean geometry.

MA 31 Elementary Number Theory 3 - 3
Properties of the integers are studied. Topics include divisibility, prime numbers, congruences, Diophantine equations and mathematical induction.

MA 32 History of Mathematics 3 - 3
The development of mathematical ideas and methods from ancient to modern times and their relevance for other fields of knowledge.

MA 33, 34 Calculus III and IV 3 - 3 each semester
Sequences and series, vector valued functions, partial differentiation, multiple integration and other topics.

MA 36 Introduction to Mathematical Logic 3 - 3
An elementary introduction to the standard sentential and first order predicate calculi is given. Connections between syntactic and semantic aspects of formal languages are emphasized.

MA 37 Probability and Statistics I 3 - 3
A careful development of elementary probability theory with applications is followed by the study of discrete and continuous random variables including the binomial, Poisson, and normal.

MA 40 Geometry II 3 - 3
Projective geometry and other topics.

MA 41 Topology 3 - 3
Topics include point sets, metric spaces, topological spaces, connectedness and compactness.

MA 42 Elementary Differential Equations 3 - 3
Linear first and second order differential equations, methods of solution and applications are studied. Series solutions and higher order linear equations are considered.

MA 43 Advanced Multivariate Calculus 3 - 3
The differential and integral calculus of vector-valued functions and functions of several variables.

MA 44 Real Variable Theory 3 - 3
A rigorous treatment of the foundations of differential and integral calculus with such topics as the real numbers, continuity, metric, and Euclidean spaces.

MA 45 Abstract Algebra II 3 - 3
A continuation of MA 25.

MA 47 Probability and Statistics II 3 - 3
Random variables and their probability distributions are used to study problems in estimation, hypothesis testing, regression and analysis of variance.

MA 50 Topics in Mathematics 3 - 3
Seminar. Topics from advanced mathematics will be chosen by the instructor. May be repeated for credit. **Prerequisite: Permission of the Instructor.**

MA 81 Methods and Materials in Secondary Mathematics 3 - 3
Curriculum and pedagogy of secondary school mathematics with a practicum of preprofessional experiences. Offered in fall semester only. **Prerequisite: IM 24.**

MA 83 Mathematical Concepts 3 - 3
Topics from arithmetic, algebra, and geometry of modern elementary school mathematics programs with attention to the structural and discovery approach.

MA 90 Independent Study 3 SH
Prerequisite: Permission of department.

MEDICAL TECHNOLOGY

COORDINATOR AND ASSOCIATE PROFESSOR: Rose Marie Neunherz

The degree of Bachelor of Science in Medical Technology must include MT 10, 40, 42, 44, 46; BI 28, 41, 42, 44; CH 11, 12, 20, 21, 30; PH 11, 12; and two mathematics courses at or above the level of MA 12. To receive a Bachelor of Science degree, Medical Technology students must complete a practicum at an affiliated hospital. In order to be admitted to the Junior year in the Medical Technology program a student must have a minimum cumulative average of 2.7 in math, biology and chemistry courses. The college cannot guarantee the placement of any candidate in an affiliated hospital.

MT 10 Introduction to Medical Technology 1 - 2
An integrated lecture-laboratory course designed to acquaint the student with the role of the medical technologist in the clinical laboratory, the duties of technologists, employment opportunities and educational requirements for the profession. Laboratory work includes introduction to techniques in hematology, clinical chemistry, immunohematology and clinical microbiology. 2 hrs. lecture/lab per week. Offered Fall semester.

MT 40 Clinical Hematology 8 SH
Comprehensive study of principles, procedures, special techniques and disease states in hematology. Laboratory experience includes theory and practice of blood cell enumeration and identification of normal and abnormal stained blood smears. Ca. 10 hrs. lecture/lab per week during each semester of hospital internship year. **Prerequisites: 90 college credits, including 21 cr. biology and 20 cr. chemistry.**

MT 42 Clinical Chemistry 8 SH
Principles and techniques currently employed in clinical laboratories; preparation of solutions and care of equipment. Diagnostic tests are performed on all body fluids utilizing both manual and the latest instrumental techniques. Theory of the chemical manifestations of disease and the interpretation of data are stressed.
Ca. 10 hrs. lecture/lab per week during each semester of hospital internship year. **Prerequisites: 90 college credits, including 21 cr. biology and 20 cr. chemistry.**

MT 44 Clinical Microbiology 8 SH
A course designed to prepare the student for the isolation, identification and propagation of pathogenic organisms. Bacteria and their clinical significance to man are emphasized, but pathogenic fungi, protozoa and viruses are also considered. Ca. 10 hrs. lecture/lab per week during each semester of hospital internship year. **Prerequisites: 90 college credits, including 21 cr. biology and 20 cr. chemistry.**

MT 46 Immunohematology 8 SH
Basic theory and laboratory techniques in blood banking and serology; common blood types, screening and preparation of donors, cross-matching, antigen-antibody reactions, and serological procedures: Ca. 10 hrs. lecture/lab per week during each semester of hospital internship year. **Prerequisites: 90 college credits, including 21 cr. biology and 20 cr. chemistry.**

MILITARY SCIENCE

PROFESSOR: LTC John McDonald
ASSISTANT PROFESSORS: CPT Ronald Bishop, CPT Michael Hughes, CPT Steven Hunt, CPT Leo McCloskey

Army Reserve Officer Training (ROTC) is offered by Fitchburg State College and is available to all male and female students. Physically qualified American citizens who complete the entire four-year program will be commissioned in the United States Army. Post graduate Army service will be satisfied by a brief three to six month period on active duty for training only followed by participation in an Army reserve component or three years active duty as a leader and manager. Delayed entry on active service for the purpose of graduate schooling is routinely granted.

Military Science is designed to complement other instruction offered by Fitchburg State. Emphasis throughout is on the development of individual leadership abilities and preparation of thes student for future important leadership roles in the Army.

The Military Science Department offers several concurrent programs designed to complement the Fitchburg State Plan. There are four variations of ROTC available to the student who desires to participate:

1. The traditional 4-year program during which the student would take MS courses two terms per academic year and attend one advanced summer camp between the third and fourth years.

2. The 2-year program designed especially for transfer students from non-ROTC schools. In this case, qualified students attend a basic summer camp prior to their third year and then continue through their last two years as any other 4-year program student.

3. The third variation consists of a compressed program for students who feel they can complete their academic studies in three years. The recommended compression is to take both the first and second year military science subjects in one year but other arrangements can be made. The courses themselves are those of the 4-year program.

4. The last variation incudes modular training in the military or personal skills which replaces part or all of the classroom academics offered in the first two years. This type of compression can be worked out both for first and second year students.

Enrollment in ROTC produces no military obligation for the first two years. Students entering the Advanced Course (usually at the start of the third year) may incur a three-year active-duty commitment as an officer in the U. S. Army, or attend 90 days Active Duty for Training.

BASIC COURSE

The Basic Course includes the military science subjects taught during the first and second years. It introduces the student to the Army and the Army to the student. Since all effective leaders must understand the organization in which they will function, initial instruction is intended to create a working knowledge of the Army. Subsequent instruction deals with the study of a military management. Included is an in-depth analysis of the military aspects of American history.

ADVANCED COURSE

The Advanced Course includes those subjects taught during the third and fourth years at Worcester Polytechnic Institute. The objective is to develop leaders; to give the cadet experience in first organizing, then managing a project; to enable the cadet to take charge of any project and bring it to a successful conclusion. This acquired ability is useful in every human endeavor; it is essential to the military leader. In conjunction with the theoretical approach to leadership studied in class, students are required to apply their knowledge during Leadership Laboratory. The Advanced Course is open to all students who have completed satisfactorily two years in the basic course or the equivalent. To be accepted, students must be selected by a board established by the head of the Department of Military Science.

A student enrolled in the Advanced Course receives an allowance of $100 a month from the date of enrollment. During the Advanced Summer Camp, however, pay is computed at one-half of a second lieutenant's base pay. To enroll in the Advanced Course students must execute a contract stating they will continue the course of instruction for two years and accept the commission of second lieutenant in the United States Army upon graduation.

LEADERSHIP LABORATORY

Leadership Laboratory, consisting of two training weekends at nearby Fort Devens, one in the Fall, and one in the Spring, is a mandatory program for successful completion of each ROTC year.

The purpose of Leadership Laboratory is to give each cadet the opportunity to apply practically the theory learned during formal class periods. The senior cadets

conduct the laboratory period with underclassmen filling subordinate roles, their degree of responsibility dependent on how far they have advanced in ROTC.

The Military Science Department encourages its cadets to participate in athletics and to join other extra-curricular activities in order to practice leadership theories learned in Military Science. In the event of schedule conflicts, training periods selected from Intersession courses or active participation in one of the ROTC extra-curricular activities may be substituted for the required weekend with prior ROTC advisor approval.

MS 13 Introduction to Management and National Security Organization 2 - 2

An introduction to the fundamentals of small unit leadership and the national security structure of the United States. Topics include: Theory X/Y, Maslow's Hierachy of Needs, threat perception, and the social, economic, and political implications of the defense establishment.

MS 21 Small Unit Management 2 - 2

Operational procedures, to include communications and land navigation, and leadership techniques utilized in military situations will be examined.

MS 22 American Military History 2 - 2

An in-depth study providing the broad background so vital to successful military leadership. The importance of military history as an integral element of the broader course of history is stressed as well as its relationship to domestic and foreign affairs of the United States.

MS 31 Advanced Theory of Unit Operations 2 - 2

A continuing study of effective leadership in tactical operations, culminating the lessons learned during previous courses; examination of the theory and dynamics of the military team and its effective employment as part of the combined arms concept.

MS 32 Techniques of Leadership/ Management 2 - 2

An in-depth analysis and evaluation of the principles of management and their application to the Army. This course delves into basic psychology and problem-solving techniques necessary for the leader to efficiently lead his men and his resources.

MS 41 World Change and Military Implications/Military Law 2 - 2

Examination of the international system, use of force among nations, contemporary world events and their effect on the U.S. Security. The role of the officer with regard to military law will be surveyed.

MS 42 Effective Military Communication 2 - 2

An introduction to military methods of instruction and basic teaching procedures. Effective speaking, listening, writing, and military correspondence, and an emphasis on the interrelationship of staff and command assignments in the effective utilization of men and resources.

MUSIC

PROFESSOR: Richard Kent
ASSOCIATE PROFESSOR: Harry Semerjian
ASSISTANT PROFESSOR: Frank Patterson

MU 10 Art of Music I 3 - 3

Music as aesthetic experience. Representative styles and categories from the Middle Ages to the present. Students are required to attend professional concerts.

MU 20 Art of Music II 3 - 3

Music's reflection of the values and ideals of societies past and present. Interrelationships between the fine arts.

MU 22 Applied Music 1 - 2

Techniques and skills for prospective teachers of elementary and special classes.

MU 31 Symphony 3 - 3

Structural and stylistic characteristics of the symphony from the 18th century to the present.

MU 32 Opera 3 - 3

Several works from the standard operatic repertoire. Some significant trends in modern opera.

MU 33 Chamber Music 3 - 3

Study of music for small ensemble.

MU 34 Twentieth-Century Music 3 - 3

The idioms and aesthetic notions of the present century, together with their relationship to the past.

MU 35 American Music 3 - 3
American music from colonial times, with some emphasis upon "popular" and "Art" music of the present century in the U.S.

MU 36 Baroque and Classical Music 3 - 3
Monteverdi to Beethoven. Opera, oratorio, passion, cantata, sonata forms, dance forms, shifting aesthetic views.

MU 37 Romantic Music 3 - 3
The 19th century as reflected in its music. Music drama, nationalism.

MU 40 Choral Arts 1 - 2
Singing choral music past and present, including dramatic music. No more than 6 semester hours applicable toward graduation. Available for audit. (See MU 41).

MU 41 Instrumental Arts 1 - 2
Small and large ensemble playing or representative works for instruments. No more than 6 semester hours of MU 41 or any combination of MU 41 and MU 40 applicable toward graduation. Available for audit.

MU 42 Class Piano 1 - 2
Practical keyboard usages in classroom work: accompaniment, simple transposition, harmonization of melodies at the keyboard.

MU 43 Class Voice 1 - 2
Principles of voice production. Breath control, phrasing, resonance, and diction are stressed.

MU 44 Song 3 - 3
Popular, folk, and art songs of many nations.

MU 45 Harmony I 3 - 3
Harmonizations of simple melodies. Principles of modulation and key relationships.

MU 46 Harmony II 3 - 3
Further work in modulation. Chromaticism. Late 19th and early 20th century developments. **Prerequisite: MU 45 or equivalent.**

MU 47 Compositional Techniques 3 - 3
Working with small musical forms. Traditional devices like sequence, ostinato, motivic development. Freer forms.

MU 48 Musical Production 3 - 3
Workshop approach to producing and rehearsing opera, operetta musical comedy.

MU 80 Music in Elementary Education 3 - 4
The objectives and techniques of teaching music in the first six grades. **Prerequisite: MU 22.**

MU 90 Independent Study in Music 3 SH

NURSING

CHAIRMAN: Eleanor Voorhies
PROFESSOR: Eleanor Voorhies
ASSOCIATE PROFESSORS: Lillian Bannon, Rita Driscoll, Phyllis Green, Elizabeth May, Katherine O'Connor, Margaret Taylor
ASSISTANT PROFESSORS: Virginia Doyle, Sophia Harrell, Jean Mansfield, Barbara May, Rowena Taylor, Dolores Torti
INSTRUCTORS: Denise Connors, Sheila Fredette, Martha Harter, Jane Minasian, Janice Oberacker, Charlotte O'Connor, Barbara Powers, Eileen Sjoberg
PART-TIME INSTRUCTORS: Sandra Austin, Michelle Brady, Gail Consolati, Jean Kressy, Mildred Marion, Judith Mizhir, Marilyn Richard
LABORATORY ASSISTANTS: Genifer Anderson, Nancy Dziczek, Helen Trinque

Purpose

The purpose of the Fitchburg State College Nursing Program, derived from its philosophy and conceptual framework, is to prepare a professional nurse practitioner who assumes responsibility for planning and providing health care to individuals, groups, and communities in collaboration with other health professionals. He/she is capable of making independent nursing judgments and is accountable for his/her actions in providing primary and secondary nursing care.

Objectives

Upon completion of the program, the graduate:

1. Demonstrates the ability to think critically.
2. Respects the uniqueness, totality, and right to freedom of choice of each individual.
3. Detects and interprets deviations from established health norms and takes appropriate action.
4. Utilizes the nursing process, based on theoretical foundations, in the diagnosis and treatment of the nursing component of health problems.

5. Demonstrates therapeutic use of self in relationships with others.
6. Provides to others knowledge needed to facilitate decisions regarding health.
7. Utilizes knowledge of the research process to critically evaluate and implement research findings in the improvement of nursing care.
8. Utilizes leadership skills in anticipating, recognizing, and implementing change.
9. Collaborates with other disciplines in the designing and delivery of health care systems.
10. Assumes responsibility for continuous personal and professional growth through formal and informal avenues.
11. Demonstrates commitment to citizenship responsibilities via active involvement in health and social issues.

NURSING CURRICULUM PLAN

FRESHMAN YEAR

Anatomy & Physiology	3
Chemistry I	3
*General Psychology	3
English Composition	3
Elective	3
	15
Anatomy & Physiology	3
Chemistry II	3
*Intro. to Sociology	3
English Composition II	3
*A/V Equip. Operation	1
Elective	3
	16

SOPHOMORE YEAR

The Nurse: Concept & Practice I	6
Health Care in America	2
*Human Growth & Development	3
*Applied Statistics	3
Elective	3
	17
The Nurse: Concept & Practice II	6
Microbiology	3
Electives	6
	15

JUNIOR YEAR

Nursing Intervention: Concept & Practice	12
Electives	3
	15
Nursing Intervention: Concept & Practice II	12
**Speech	3
Elective	3
	18

SENIOR YEAR

Nursing in Society: Concepts and Practice	10
Professional Issues & Trends	2
Elective	3
	15
Nursing: Selective Practicum	12
	12

*May be taken either semester.
**May be taken any semester of any year.

Bachelor of Science in Nursing

(123 semester hours -- 63 semester hours in Nursing)

GENERAL EDUCATION (60 SH minimum)

English Composition I & II	3/3
Speech	3
State & Federal Const. Prof.	
Math/Science	12 - 16 SH
Anatomy & Physiology I & II	3/3
General Chemistry I & II	3/3
Survey of Micro-organisms	3
Social Sciences	15 SH
General Psychology	3
Introduction to Sociology	3
Human Growth & Development	3
Humanities	15 SH
Electives (from Gen. Ed. Area)	6 SH
Applied Statistics	3

NURSING * 63 SH

A/V Equipment Operation	1
Health Care in America	2
The Nurse: Concept & Practice I & II	6/6
Nursing Intervention: Concept & Practice I & II	12/12
Nursing in Society: Concepts and Practice	10
Nursing: Selective Practicum	12
Professional Issues & Trends	2

*Students are responsible for providing their own transportation for clinical practice.

NOTE: As of September, 1975 students will be required to have the same quality point ratio in nursing courses at the end of each semester as in other courses, in order to progress.

Bachelor of Science in Nursing for Registered Nurses

Applicants must meet the regular college requirements for admission which include the following: 1. Application filed by April 1; 2. Official transcripts from (a) High School (b) diploma or associate degree program and (c) colleges and universities attended.

In addition to the above requirements registered nurses must successfully complete the competency exams offered in place of the sophomore and junior basic nursing courses. These examinations are developed by the faculty in the Department of Nursing and administered by the CLEP Program Director once each month. All examinations must be completed by March 1 for admission the following fall. However, seniors in diploma or associate degree programs may arrange for a later testing date with the consent of the nursing coordinator. Further information including application for the examinations, course outlines and bibliographies may be obtained from the Nursing Department. It is also recommended that an interview be arranged with the coordinator of the registered nurse program.

Program Plan for Registered Nurses

Must meet the General Education Distribution Requirements as established for the basic nursing curriculum. Registered nurses may receive credit for General Education through the CLEP Program and teacher made examinations. At the present time, teacher made examinations are offered for Anatomy and Physiology, and Human Growth and Development. These exams are also offered through the office of the CLEP Program. The complete list of CLEP examinations through which students may earn credit is also available from that office.

Nursing Distribution: Nursing Competency Examinations, 27 semester hours; Concepts of Nursing I, 6 semester hours; Concepts of Nursing II, 6 semester hours; Professional Issues and Trends, 2 semester hours; Nursing Concept and Practice in the Community, 10 semester hours; and Nursing: Selective Practicum, 12 semester hours. Total required credits is 63.

NS 27 The Nurse: Concept and Practice I 6 - 8

Theoretical and methodological concepts provide the framework for assisting the student to develop as a person and a learner, and to prepare him/her to assume the role and responsibilities of professional nursing. Normal nutrition is part of the content. Laboratory experiences are provided for the acquisition of effective and psychomotor skills. **Prerequisites: BI 12, BI 13, CH 11, CH 12, PY 10, SO 10, EN 10, EN 12.**

NS 28 The Nurse: Concept and Practice II 6 - 8

The concepts learned in NS 27 are the frame of reference for the development of beginning skills in the health assessment of well clients in their own environment, of women during pregnancy, and of the newborn child. Included is the introduction to pharmacology. **Prerequisite: NS 27.**

NS 29 Health Care in America 2 - 2

This interdisciplinary course, shared by faculty from history, special education, and nursing, provides students with a frame of reference relative to the contemporary health care system of which they will be a part. Areas to be explored will include: some historical development; current system of health care; financial, legal and political aspects; and manpower, including nursing.

NS 351 Concepts of Nursing I 6 - 9

Designed to provide the advanced placement student with a quality learning experience to broaden his/her perspective of professional nursing. Students choose clients from a variety of health care settings in order to apply their knowledge and skills in providing health care. (Offered first and second semesters)

NS 36 Concepts of Nursing II 6 - 9

Through the process of critical thinking the concepts and theories of nursing and health are further developed and practiced with clients in settings chosen by the students. (Offered second semester only)

NS 37 Nursing Intervention Concept and Practice I 8 - 8

The totality of man as a bio-psycho-social being is emphasized. The frame of reference is man's internal environment. Concepts directed toward stabilizing this environment are discussed. Concepts and theories of nursing and health are discussed, broadened and increased in depth. NS 37X1 is taken concurrently with this course.

NS 37X1 Nursing Intervention Concept and Practice I - Laboratory 4 - 12
Through the selection of appropriate data and the process of critical thinking, the student will select and implement nursing interventions for selected clients. Clinical experiences will be planned in a variety of settings. This course is offered concurrently with NS 37.

NS 38 Nursing Intervention: Concept and Practice II 8 - 8
Specific needs/problems resulting from the creation, transportation, kinetics and potentials of energy as they relate to man and his being will be discussed. The student will have the opportunity to expand his/her concepts of nursing through integration of selected theories. This course is offered concurrently with NS 38X2. **Prerequisites: NS 37 and NS 37X1.**

NS 38X1 Nursing Intervention Concept and Practice II - Laboratory 4 - 12
Through clinical experience and group conferences, the student will develop increased skill in data collection, communication, physical and psychological assessment, and from this data base will implement the nursing process. Clinical experience will be offered in a variety of settings. This course is offered concurrently with NS 38. **Prerequisites: NS 37 and NS 37X1.**

NS 42 Professional Issues and Trends 2 - 2
This course provides an opportunity for senior nursing students to: identify, explore, and discuss some of the critical issues and trends affecting nursing today; consider rights and responsibilities relative to professional organization and practice; and consider approaches to and opportunities for employment after graduation.

NS 47 Nursing in Society: Concepts and Practice 10 - 18
General Systems Theory and the nursing process provide the framework of the course. Subsystems considered are group, family, community, nation and universe. An holistic approach is used to assess the interdependence between the clients health and the environment. Nursing intervention is planned on the primary, secondary, and tertiary levels.

NS 48 Nursing: Selective Practicum 12 - 20 to 30
This course provides students with the opportunity to explore in depth particular areas of interest. The purpose of the experience is to encourage the synthesis of all previous learnings. The concept of critical thinking, leadership skills, communication skills, primary care, and research underlie the course of study. The student is required to select a variety of guided clinical experiences during the semester.

PHILOSOPHY

PROFESSORS: Reginald O'Neill, Walter Jeffko
ASSOCIATE PROFESSOR: Richard DeCesare
ASSISTANT PROFESSOR: Richard Glidewell

PL 10 Introduction to Philosophy 3 - 3
An introduction to the problems, methods, and goals of classical and contemporary Western Philosophy. Emphasis is placed upon how these differ from and relate to other fields of human knowledge.

PL 20 Ancient Philosophy 3 - 3
A study of the beginnings of Western Philosophy, including the Pre-Socratics, Plato, Aristotle, and several other figures of the period. **Prerequisite: PL 10.**

PL 21 Medieval Philosophy 3 - 3
Includes St. Augustine, Boethius, Albertus Magnus, Avicenna, Averroes, Maimonides, and St. Thomas, and their influence upon subsequent philosophy. **Prerequisite: PL 10.**

PL 22 Modern Philosophy 3 - 3
Trends of modern thought since the Renaissance, including Descartes, Locke, Spinoza, Leibniz, Hume, Kant, and Hegel. **Prerequisite: PL 10.**

PL 23 Contemporary Philosophy 3 - 3
An examination of some current trends and issues in contemporary American, British, and European philosophy. **Prerequisite: PL 10.**

PL 30 Philosophy of Education 3 - 3
This course seeks to trace the origin and development of major educational theories and their contemporary implications.

PL 31 Logic 3 - 3
An introduction to logical thinking from the perspective of both traditional and modern logic. The following topics are covered: difference between deduction

and induction, language and definition, fallacies, categorical propositions, categorical syllogisms, deductive arguments in ordinary language, and selected topics in symbolic logic.

PL 32 Theories of Knowledge 3 - 3
The problems and methods of human knowledge. Theories presented in the light of idealism, realism, pragmatism, and existentialism. **Prerequisite: PL 10.**

PL 33 Metaphysics 3 - 3
Introduction to the origin and development of metaphysical problems in Western Philosophy. **Prerequisite: PL 10.**

PL 34 Philosophy of Man 3 - 3
An exploration of human nature or personhood from the triple perspectives of philosophy, religion, and behavioral science, focusing upon the following thinkers and movements: Plato, Christianity, early modern individualism, Marxism, Freud, existentialism, Frankl's logotherapy, Skinner, Fromm's humanism, and personalism.

PL 35 Ethical Theories 3 - 3
Moral experience and reflective ethics; survey and critical evaluation of major ethical theories; ethics and science.

PL 36 Contemporary Ethical Problems 3 - 3
Application of ethical thinking to some of today's major social and personal issues including crime and punishment, civil disobedience, prejudice and discrimination, sex, abortion, war, and suicide and death.

PL 40 Existentialism 3 - 3
Origin of contemporary existentialism; its leading ideas as seen in writings of such philosophers as Kierkegaard, Jaspers, Marcel, Sartre, and Camus. **Prerequisite: PL 10.**

PL 41 Philosophy of Art 3 - 3
An examination of the interpretations of esthetic experience presented by such thinkers as Aristotle, Tolstoy, Shiller, Bergson, Spengler, and Dewey. **Prerequisite: PL 10.**

PL 42 Political and Social Philosophy 3 - 3
The various political and social ideas beginning with Plato and continuing to Marx. **Prerequisite: PL 10.**

PL 43 Philosophy of Science 3 - 3
An analysis of the methods and goals of the physical sciences, how they differ from the social sciences, and the philosophic problems encountered in scientific pursuits.

PL 44 Philosophy of Language 3 - 3
The role played by language in human knowledge and the increased emphasis on the analysis of language in recent philosophy. **Prerequisite: PL 10.**

PL 45 Philosophy of Love 3 - 3
An analysis of the concept "love" as employed in the social and moral philosophies of various classical and contemporary thinkers. **Prerequisite: PL 10.**

PL 46 Philosophy of Religion 3 - 3
The God-problem and religious experiences as seen in the classical philosophers and in the philosophies of existentialism and pragmatism. **Prerequisite: PL 10.**

PL 49 Comparative Religious Experiences 3 - 3
This course studies the principal religions of mankind: Buddhism, Islamism, Judaism, and Christianity; their basis tenets and insights into spiritual values.

PL 50 Plato 3 - 3
Plato's theory of ideas, theory of knowledge, ethical and political views, doctrine of the fine arts. **Prerequisite: PL 10.**

PL 51 Aristotle 3 - 3
A study of Aristotle's philosophy as seen in his Metaphysics, Politics, and Nicomachaen ethics. **Prerequisite: PL 10.**

PL 54 Marxism 3 - 3
A study of Marx's thought, its origins, development, and contemporary applications. **Prerequisite: PL 10.**

PL 55 Early American Philosophy 3 - 3
A study of American thought from the Colonial Period through the 19th century.

PL 56 Contemporary American Philosophy 3 - 3
An examination of the current trends and issues in American thought.

PL 57 American Pragmatism 3 - 3
An analysis of the thought of Peirce, James, and Dewey. **Prerequisite: PL 10.**

PL 60 Seminar/Special Topics 3 - 3

PHYSICAL EDUCATION

CHAIRMAN AND PROFESSOR: Thomas Battinelli

ASSISTANT PROFESSORS: Lee Cunningham, Joyce Downey, Elizabeth Kruczek, Barbara Nole, James Sheehan

Physical Education Specialization

The Fitchburg State College Physical Education Specialization is designed to provide students with an opportunity to pursue:

1. Study in an alternative field of interest;
2. Prerequisite study for further graduate work.

The course requirements are: Exercise and Sport Science (3); Overview of Physical Education (3); Behavioral Concepts of Sport (3); Athletic Training and Conditioning (3); and Physical Activity Skills (6).

Human Services majors may substitute Recreational Leadership and Camp Counseling as requirements.

PE 10 Health and Fitness 3 - 3
A basic survey of the effects of diet, exercise and selected environmental agents upon human, mental and physical health. Topics may include body build and body composition, fitness evaluation and programming, nutritional considerations, psychological correlates of health, chemical alternations, human sexuality, and personal and public health.

PE 11 Constitutional Morphology 2 - 1
An overview of the study of the size and shape of the human body will be presented. Skeletal, physique, lean body, weight and percentage of body fat assessments will be made in relation to physical activity.

PE 12 First Aid and Safety 2 - 1
A behaviorally oriented course structured for those responsible for the safety and protection of others. Satisfactory completion, with official Red Cross certification, is required for all students in all curricula except Nursing, Medical Technology and all Bachelor of Arts programs. Education majors must have completed a First Aid course at the college or elsewhere prior to student teaching.

PE 13 Introduction to Kinesiology 2 - 1
An overview of the study of the mechanics of human motion will be presented. This course is designed to integrate Kinesiological principles to the teaching of selected motor activities.

PE 14 Behavioral Concepts of Sport and Fitness 3 - 3
This course is designed to aid the student in understanding the psychological and sociological behaviors common to the realms of sport and fitness. Concepts of competition, cooperation, motivation, social stratification and interaction will be examined. Also, a variety of observational techniques will be used in the analyzation of behavioral reactions.

PE 15 Consumer Health 2 - 1
This course is designed to help the student evaluate health information critically, and select products and services wisely. The past, present, and future of quackery will be explored especially in the areas of food, cosmetics, and chronic disorders. Laws and protection agencies, governmental and private, will be surveyed.

PE 16 Exercise and Sport Science 3 - 3
Basic exercise physiology is explored as it relates to the health professions. Theoretical topics include orientation to exercise, movement and energy production, neurological aspects of movement, and circulatory, respiratory, and hormonal factors in exercise. Practical topics include: cardiovascular stress testing, nutrition and weight control, physique and body composition, fitness programming, the female in sports, the influence of activity on growth, evaluation of muscular strength, respiratory responses to exercise, and environmental effects such as altitude and temperature.

PE 17 Physical Education: An Overview 3 - 3
Designed to provide the student with an overview of the philosophic history, administrative patterns, current curriculum approaches, teaching and learning concepts, and innovative trends in physical education.

PE 18 Jogging: Theory and Practice 3 - 3
The scientific basis for cardiovascular training programs using jogging as the mode of activity will be presented. Pre-post cardiovascular and body composition evaluations and individualized jogging programs will be designed.

PE 19 Psychology of Sport 2 - 1
A basic overview of the psychological impacts of sport upon participants and spectators. The areas of winning and losing, competition behavior modification, women in sport, and the study and analyzation of emotional-reaction profiles will be used in the observation of emotional behaviors.

PE 22 Figure Control Through Weight Training 2 - 1
The theory of weight training and diet in relation to figure control will be discussed. Each student will have physique, body composition, aerobic fitness and muscular strength evaluation before and after a weight training program.

PE 51 Perceptual Motor Activities 2 - 1
A study of the role of physical activity for the mentally retarded, educationally handicapped and the emotionally disturbed will be presented. Topics will include motor integration, foundations of motor learning, research and evaluation, and program development.

PE 65 Motor Learning and Motor Performance 2 - 1
The neuromuscular integration of human movement in reference to components and factors related to the learning of motor activities will be investigated.

PE 67 Diet, Exercise and Weight Control 2 - 1
The course is designed for those interested in weight loss or weight maintenance through the medium of diet and exercise. After an initial assessment of body composition, endurance fitness and the establishment of dietary goals, each student will work toward the normalization of body weight through actual programs of exercise and diet.

PE 80 Physical Education in the Elementary School 1 - 2
A theory and practice course designed to guide the classroom teacher in organizing a comprehensive program of physical education activities.

PE 81 Weight Training for Athletes 2 - 1
Theory for the development of muscular strength for specific athletic activities. Anthropometric, body composition, and muscular strength evaluations will be undertaken prior to and following an individually developed weight training program.

PE 82 Sports Concepts 2 - 1
Physical activity skills for team sports will be viewed from the physiological and values perspective. Students will practice physical activity and values techniques.

PE 83 Athletic Training and Conditioning 3 - 3
A course designed to discuss the principles of injury prevention and care, the physiology of training, and nutritional considerations as they apply to athletics.

PE 84 Officiating Basketball and Volleyball 3 - 3
The philosophy and techniques of officiating basketball and volleyball for women. DGWS rules are used for both sports, and an opportunity is presented to take the written and practical national examination to obtain a rating in either or both sports.

PE 85 Fundamentals of Coaching 3 - 3
An analysis of the principles and practices of coaching in various sports will be presented for the prospective teacher-coach.

PE 86 Orientation to Physical Activity 2 - 1
An overview of physical activity as it relates to sports and health. Topics such as exercise classification, specificity of exercise, body composition evaluation, muscular strength and endurance, energy cost of exercise, aerobic capacity, cardiovascular evaluation, and relaxation techniques will be surveyed.

PE 88 Recreational Leadership 3 - 3
The organization and administration of recreational activities will be presented in reference to the development of the principles and practices in both school and community programs. Leadership experience with school and community programs will also be offered.

PE 89 Camp Counseling 3 - 3
Course content provides an opportunity to study some of the problems in the Field of Camping, to acquire skills essential in camp life and to develop leadership in individual and group work. Actual camping experience is gained by attendance of two weekend sessions of a local camp.

Activity courses are taught on a half-semester basis. Each half semester carries 2 clock hours and ½ credit.

PE 20 Handball
PE 21 Physical Conditioning
PE 25 Soccer
PE 28 Basketball
PE 29 Advanced Basketball
PE 30 Volleyball

PE 31 Softball
PE 34 Tennis
PE 35 Advanced Tennis
PE 37 Badminton
PE 40 Karate
PE 41 Judo
PE 43 Gymnastics
PE 45 Slimnastics
PE 46 Rhythmics
PE 49 Aerobics
PE 53 Folk Dance
PE 54 Advanced Volleyball
PE 55 Recreational Sports
PE 59 Canoeing
PE 60 Beginning Tumbling
PE 61 Mountain Leadership
PE 62 Backpacking
PE 63 Downhill Skiing
PE 64 Cross Country Skiing

PHYSICS

CHAIRMAN: Esmail Valanejad
ASSOCIATE PROFESSORS: Theodore LaPierre, Robert Shaughnessy, Esmail Valanejad
ASSISTANT PROFESSORS: Norman Fredette, Karl Lindquist,

The degree of Bachelor of Arts in Physics must include PH 11, 12, 15, 21, 22, 23, 24, 25, 31, 32, 34, 45; MA 23, 24; and a Physics elective from PH 26, 33, 35, 42, 43, 44. The Bachelor of Arts degree also requires foreign language proficiency at the second year college level.

The degree of Bachelor of Science in Physics must include PH 11, 12, 15, 21, 22, 23, 24, 25, 31, 32, 34, 45; MA 23, 24; CH 11, 12; and two Physics electives chosen from PH 26, 33, 35, 42, 43, 44.

The degree of Bachelor of Science in Education, Secondary, in Physics must include PH 11, 12, 15, 21, 22, 24, 25, 34, 41; MA 23, 24; PH 23, 26, 31, 32, 33, 42, 43, 44 or 45. The degree also includes ED 61, ED 87 and IM 24.

PH 11 Introductory Physics I 3 - 4
An introduction to an analytical study of Newtonian mechanics and the properties of matter. A working knowledge of algebra is assumed. Elements of trigonometry are considered in the course.

PH 12 Introductory Physics II 3 - 4
An introduction to an analytical study of wave motion, electricity and modern physics. A working knowledge of algebra and trigonometry is assumed.

PH 13 General Physics I 4 - 5
Mechanics: Straight line motion; circular motion; Kepler's law of planetary motion; universal gravitation; work; energy; power; conservation of energy and momentum; simple harmonic motion. Hydrostatics and hydrodynamics: Archimedes' principle, Bernouli's equation, viscosity, Stokes law, Reynolds number.

PH 14 General Physics II 4 - 5
Electricity and Magnetism: Coulomb's law, electric field, electric potential, capacitance, electric circuits, magnetic field, magnetic forces on a current-carrying conductor, magnetic field of a current, induced e.m.f., magnetic properties of matter. Heat and thermodynamics: heat and heat measurements; transfer of heat; thermal properties of matter; the laws of thermodynamics; kinetic theory of gases. **Prerequisite: PH 13.**

PH 15 General Physics III 4 - 5
Wave motion: waves, vibrating bodies, electromagnetic waves. Geometrical Optics: Laws of reflection and refraction; mirrors; lenses; optical instruments; eye and its optical defects and their correction; illumination and color. Physical Optics: interference and diffraction; polarization. Atomic and Nuclear Physics: atomic spectra; the Bohr atom; Compton effect; X-rays; radiation hazards. **Prerequisite: PH 14.**

PH 21 Applied Mathematics I 3 - 3
Trigonometry: Definitions, trigonometric identities; trigonometric equations; trigonometric tables and their construction. Solution of a triangle, quadrilateral, etc. Application to optics. Determinants: rules for manipulating determinants; applications. Vector Algebra: addition; dot and cross products of vectors. Graphing of polynomials, bipolynomials, rational and irrational functions. Construction of graphs from empirical data, applications.

PH 22 Applied Mathematics II 3 - 3
Rules for differentiation of functions of one variable maxima and minima-Taylor expansion of functions. Differentiation of function of several variables - error analysis. Binomial Theorem, exponential and logarithmic functions applications to radioactive decay and Newton's law of cooling, etc. Analytical geometry: Cartesian coordinates; equation of a line; conic sections; etc.

PH 23 Applied Mathematics III 3 - 3
Rules for integration by parts, change of variable, partial fractions, trigonometric substitutions, reduction, differentiation under the integral sign. Application: Un-

certainty relations; lasers; etc. Differential equations: motion through a resistive medium; an electrical circuit; flow of heat in pipes; radio-active decay; etc.

PH 24 Electronic Physics I 4 - 5
D.C. and A.C. circuits, diodes, power supplies, filters; transistors, parameters, common emitter, common base, common collector configuration, load line analysis.

PH 25 Electronic Physics II 4 - 5
Multi-stage amplifiers, gain, bandwidth, distortion, oscillators, operational amplifiers, analog computation, gates, flip-flops, counters.

PH 26 Electronic Physics III -- Digital Electronics 3 - 4
Fundamental theory and application of digital circuits, diode and transistor gates, flip flops, analysis and synthesis of logic circuits using integrated circuits. **Pre-requisite: Electronic Physics II, or a course in basic electronics.**

PH 31 Intermediate Mechanics 3 - 3
Calculus and delta methods are used in an analytical study of Newtonian mechanics with application to nonconservative forces, central forces, and rotational dynamics. **Prerequisite: PH 13 or equivalent.**

PH 32 Vibrations and Waves 3 - 4
Linear oscillator, free and forced oscillations, damping, vibrating string, traveling and standing waves. Fourier analysis, introduction to wave optics, lab work in physical optics. **Prerequisite: PH 31.**

PH 33 Quantum Mechanics 3 - 3
Inadequacies of classical physics, uncertainty principle, Schrodinger equation, physical interpretation of wave function, energy levels, harmonic oscillator, hydrogen atom, perturbation theory. **Prerequisites: PH 15 and PH 22 or MA 24.**

PH 34 Seminar in Physics 1 - 1
Oral and written presentation of topics on recent developments in the field of physics. Required of all physics majors. **Prerequisite: Junior standing in physics.**

PH 35 Electricity and Magnetism 3 - 3
After a preliminary introduction to vector algebra, electrostatic as well as magnetostatic fields in vacuum and material media are discussed. Maxwell's equations and propagation of electromagnetic waves are considered.

PH 41 Physics for Secondary Teachers 3 - 4
Concepts and laboratory work in physics specifically oriented to programs currently being offered or being developed in secondary schools.

PH 42 Statistical Mechanics and Thermodynamics 3 - 3
Laws of thermodynamics, entropy, Carnot cycle, kinetic theory of gases, Bose and Fermi gases, low temperature physics. **Prerequisite: PH 31.**

PH 43 Atomic and Nuclear Physics 3 - 3
Electronic configuration of the atoms: Pauli principle; shell model of nucleus; radioactivity; elementary particles. **Prerequisite: PH 33.**

PH 44 Solid State Physics 3 - 4
Short review of quantum mechanics, crystal structure, magnetism, semiconductor theory, specific heat of solids. **Prerequisite: PH 25.**

PH 45 Advanced Laboratory 3 - 5
Selected experiments from different areas of physics; required of physics majors on B.A. program. **Prerequisite: PH 25.**

PH 88 Physics Methods 3 - 3
Methods of teaching physical sciences at the secondary level. Includes a survey of modern secondary science curriculum. **Prerequisite: IM 24**

POLITICAL SCIENCE

ASSISTANT PROFESSOR: Alan Goldman, Shirley Haslip, Carleton LaPorte*

Courses in political science are intended for any student with a general interest in politics and government. They are also designed to provide a proper background for students interested in pursuing graduate study or a career in law, public administration, or government and political science. It is recommended that these students take six hours of Modern American Government and six hours of electives.

PS 10 Modern American Government: State and Urban Government 3 - 3
Focus upon current issues in urban and state government and politics and attempts to evaluate proposed solutions.

PS 20 Modern American Government: The Federal Government 3 - 3

Growth and complexity of the functions performed by the branches of the national government: Congress; President; and Supreme Court. Examination of the crucial role of the President today in national and world affairs. Attention given to current political campaigns. N.B. PS 10 and 20 or the consent of the Instructor are required for all other courses in Political Science.

PS 21 Public Policy Analysis: Case Studies in American Politics 3 - 3

Covers four major divisions of public policy: health, education, labor, and welfare. The aim is to attain an understanding of how the American political system works through a study of the policy that has come out of that system.

PS 22 Constitutional Law and the Supreme Court 3 - 3

Treats the Constitution as a living document, tracing its development through historic Supreme Court decisions.

PS 25 Legal Internship 6 - 12

Internships are available in several regional law offices for those persons interested in para-legal work. These internships prepare students for positions in law offices, public administration, and other human service work. Credit is either 6 or 12 semester hours depending upon arrangements with the Social Sciences Department.

PS 30 International Law and Organization 3 - 3

A study of the pioneering political institutions which have been fashioned to cope with the issues of world interdependence.

PS 32 Contemporary International Relations 3 - 3

A study of critical problems confronting the present international system. The "Cold War," armed conflict, internal violence, as well as prospects for the resolution of conflict are explored. Simulational gaming exercises and class discussions supplement readings.

PS 33 Foreign Intelligence and National Security Affairs 3 - 3

The defense and foreign affairs of the U.S. and U.S.S.R. Nuclear weapons, arms control, civil-military relations, terrorism, policy, and decision making are studied. Special attention is given to foreign intelligence and espionage. Current problems in international and national security affairs are discussed.

PS 35 Political Systems of the Modern World 3 - 3

A comparative analysis of modern national governments such as the Soviet Union, France, Germany, and Great Britain. Importance of the world's political heritage and the implications for the emerging nations of liberal democracy, communism, and dictatorship.

PS 36 Civil Rights and Civil Liberties in the United States 3 - 3

Conceptual perspectives of civil rights and civil liberties, freedom of expression and the problem of loyalty and security, equality, the civil rights movement, criminal justice procedures, and the politics of civil rights and liberties.

PS 40 Principles of Administration 3 - 3

An introduction to administration is presented. Leadership, authority, change, and communications are among the topics discussed. The course includes case studies and problem-solving from such fields as allied health, business, law-enforcement, and government service.

PS 80 Internships in Political Science

Off-campus opportunities, carrying appropriate academic credit, are available in local, state, and federal government offices and with political campaigns. Open to students who have the permission of the department. Credit and hours by special arrangement.

PS 90 Independent Study in Political Science

Open to students who have the permission of the supervising instructor and the department. Course of study, meetings, and credit by arrangement.

*Departmental Leave, 1978 - 79

PSYCHOLOGY

PROFESSORS: Harry Crowley, Everett Garvin

ASSOCIATE PROFESSORS: Alan Bernstein, G. Jefferson Breen, John Dufault, Paul Girling, Leota Janke, Richard Spencer

ASSISTANT PROFESSORS: Carol Gay, Mary Hanley, Richard Kruse, Donna-Lee McCabe, David Maloney, Charles Streff

The degrees of Bachelor of Arts and Bachelor of Science in Psychology require thirty seven semester hours of course work in psychology. The program is divided into Phase I, II and III. Required courses in Phase I are PY 10, 14, 18, 40, and 41.

Students must take at least one course in each of the six categories of Phase II: Quantitative; Developmental; Adaptive Behavior; Research Experience; Learning; and Related Electives. Courses included in the Quantitative section are PY 40 and PY 45. The Developmental Segment includes PY 16, 20, 21, 22, 23, 24, 30, 32, 70 and 84; EP 10 and 11. Adaptive Behavior courses include PY 15, 25, 26, 30, 32, 35, 36, 55, 60, 65, 73 and 77. The section on Research Experience may be satisfied by PY 22, 42, 43, 50 and 85. The Learning segment includes PY 43, 50, 70, 71 and 84. Related Electives include seminars in psychology, independent studies, and appropriate courses from sociology or human services. Courses from the other areas may be used as Related Electives.

To staisfy the Phase III requirement students must take either PY 48, 84, or 85.

The Bachelor of Arts degree requires foreign language proficiency at the second year college level.

PY 10 General Psychology 3 - 3

The science of human behavior. Scientific method, maturation, motivation, emotions, sensation, learning, personality, and adjustment.

PY 14 Introduction to Research Methods 3 - 3

Research design including consideration of sampling procedures, questionnaire design, methods of observation and reporting. **Prerequisite: PY 10.**

PY 15 Introduction to Speech Pathology 3 - 3

An orientation to speech pathology by identification and referral procedures for primary speech problems, examination and observation of speech therapy procedures. Clinical point of view is stressed. **Prerequisite: PY 10 or PY 14.**

PY 16 Psychology of Speech and Communication 3 - 3

This course provides information for judging speech behaviors of self and others. Concepts of speech, language and communication, healthy speaking and listening behaviors, non-verbal communication, animal communication, linguistic, and psycholinguistic theory. **Prerequisite: PY 10 or PY 14.**

PY 17 Speech Pathology Principles and Practicum 3 - 3

The course will provide students from allied disciplines with beginning skills for remediation of milder communication disorders in children. Under qualified supervision and from appropriate research, students will assist in diagnostic evaluations, case history information plus other report writing, and aspects of speech therapy planning and implementation. **Prerequisite: PY 15.**

PY 18 Quantitative Methods I 3 - 3

The purpose of this course is to develop an understanding of the value and philosophy of scientific methodology and to enable the student to start intelligently interpreting the research literature. Included among its elements are the nature and functions of measurements and methodologies, the defining of commonly used statistical procedures and concepts, and the applications and use of the computer in research.

PY 20 Human Growth and Development 3-- 3

A study of the physical, physiological, social, and psychological development of the individual -- from conception to old age. **Prerequisite: PY 10 or PY 14.**

PY 21 Child Psychology 3 - 3

Emphasis on the theories of development, and the application, understanding, and guiding of development in normal children. **Prerequisite: PY 10 or PY 14.**

PY 22 Advanced Child Psychology 3 - 3

An expansion and continuation of the major topics in child psychology. Opportunity for individual projects and experiences with children will be provided. **Prerequisite: PY 21.**

PY 23 Adolescent Psychology 3 - 3

Adolescent as a cultural phenomenon and as a stage of development, understanding the impact of current trends, physical and sexual development of emerging youth in their search for identity. **Prerequisite: PY 10 or PY 14.**

PY 24 Adult Psychology 3 - 3

A study of the major theories of adult development, with emphasis on problems and pressures of the middle years. **Prerequisite: PY 20 or PY 21 or PY 23.**

PY 25 Psychological and Social Perspectives on Women 3 - 3

Objectives involve an increased awareness of the dimensions of self and personhood in relation to society and the examination and analysis of issues relative to current debate concerning the status of women and the humanistic concerns of feminism.

PY 26 Gerontology: the Psychology of Growing Old 3 - 3

A one semester course to introduce the student to psychological aspects of growing old in our society. Topics for investigation would include intelligence and memory, personality differences, altered life styles, disengagement theory, reactions to stress and loss through death. Emphasis would be on the normal aging process rather than the pathological.

PY 30 Psychology of Personality 3 - 3

Dynamic factors in personality formation are followed through approximate sequences of the life period. **Prerequisite: PY 10 or PY 14.**

PY 32 Psychology of Death and Dying 3 - 3

Through lectures, readings, discussion, and media, the student will explore psychological theory, research, and personal feelings concerning the dying process, suicide, grief, sudden death, and dying as it influences persons at different developmental stages. **Prerequisite: PY 10 or PY 14.**

PY 35 Abnormal Psychology 3 - 3

Normal, neurotic, and psychotic behavior and methods of psychotherapy will be reviewed. Techniques for maintaining optimal psychological health. **Prerequisite: PY 10 or PY 14.**

PY 36 Mental Health: A Social Psychological Perspective 3 - 3

The course will feature workshop discussions on the social, legal, political and ethical factors contributing to various views of mental health, social psychological theories, and social changes and interventions. **Prerequisite: PY 10, PY 35, and consent of Instructor.**

PY 40 Quantitative Methods II: Psychological Statistics 3 - 3

Introduction to applied statistics; statistical treatment of data; descriptive statistics; basic inferential statistics up to and including analysis of variance. **Prerequisite: PY 10 or PY 14.**

PY 41 Experimental Psychology 4 - 4

The scientific method, experimental designs, and laboratory methods in behavioral science, emphasizing laboratory experiments and scientific communication of results. **Prerequisite: PY 40 or permission of the Instructor.**

PY 42 Physiological Psychology 3 - 3

Relationship between behavior and the structure and function of the organism's nervous system; emphasis on the physiological basis of learning, motivation, emotion, motor activity, and perception. **Prerequisite: PY 10 or PY 14.**

PY 43 Perception 3 - 3

Principles related to man's awareness of his world. Topics to be considered will include psychophysics, the relationship between motivation and perception, the sensory bases of perception and localization in space. **Prerequisite: 15 credits in psychology.**

PY 45 Psychological Testing 3 - 3
Laboratory course in the theory, administration, and interpretation of group and individual tests used in studying certain behavior characteristics. **Prerequisite: PY 40 or PY 75.**

PY 48 History and Systems of Psychology 3 - 3
A consideration of contemporary psychology as seen in its historical perspective. The development of psychological concepts and theories will be traced from their antecedents in philosophy, theology, and the physical sciences. **Prerequisites: Junior or Senior standing, 15 credits in psychology.**

PY 50 Psychology of Learning 3 - 3
Principles and theories of learning, classical conditioning, operant conditioning, verbal learning, acquisition of motor skills. **Prerequisite: PY 10 or PY 14.**

PY 55 Group Dynamics 3 - 3
The nature and dynamics of interpersonal relationships are revealed in typical group settings such as classrooms, workshop seminars, and other discussion-oriented groups. Emphasis will be on both content and process as demonstrated in a laboratory learning environment. **Prerequisite: PY 10 or PY 14.**

PY 60 Industrial Psychology 3 - 3
Psychological principles and techniques used in selection and placement of employees: psychological tests; worker motivation and adjustment; training; morale; accident prevention; job efficiency. **Prerequisite: PY 10 or PY 14.**

PY 65 Social Psychology 3 - 3
Psychological constructs and concepts applied to the interaction between human beings. **Prerequisite: PY 10 or PY 14.**

PY 70 Educational Psychology 3 - 3
A psychological analysis of the educational process, including learning, motivation, socialization, testing, and cognitive, moral, and language development. **Prerequisite: PY 10 or PY 14.**

PY 71 Learning Theory and its Applications 3 - 3
The principles and theories of learning, as derived by both the laboratory psychologist and the educational researcher, as applied to various social settings, e.g. the classroom, the family, etc. **Prerequisite: PY 10.**

PY 73 Psycho-Social Problems of Urban Children 3 - 3
The experience of the inner-city child in relation to housing, schools, and teachers; emergence of "the alternative school" and other attempts to help children. Students will participate in a two-hour weekly seminar and work for at least five hours in the community. **Prerequisite: PY 10 or PY 14.**

PY 75 Tests and Measurements 3 - 3
A study of basic statistical concepts and techniques in measurement, with application to teacher-made tests and standardized tests used in education and psychology. **Prerequisite: PY 10 or PY 14.**

PY 77 Principles of Guidance 3 - 3
Introductory course for students interested in developing their helping relationship skills in a one-to-one relationship and/or group setting. **Prerequisite: PY 10 or PY 14.**

PY 84 Seminar in Developmental Psychology 3 - 3
Seminar dealing with contemporary problems in developmental psychology. Specific topics will vary from semester to semester. **Prerequisite: Permission of Instructor.**

PY 85 Practicum in Developmental Psychology 6 - 12
Experience in practical application of basic principles of human development. Students will work with staff in areas of mutual interest. Preference will be given to students who have taken PY 84. **Prerequisite: Permission of Instructor.**

PY 90 Independent Study 3 - 3
Independent Study is to be offered primarily to outstanding students of Junior or Senior standing and requires approval of the professor and of the Chairman of the Behavioral Sciences department. Independent Study may take the form of: Special advanced reading programs; problem identification and research; assistantships; acquisition of professional skills. Under no circumstances will independent study be substituted for regularly scheduled courses.

PY 95 Topics in Psychology 3 - 3
Seminar dealing with contemporary problems in psychology. Specific topics will vary from semester to semester, depending upon the instructor. Variable - permission of the Instructor.

RUSSIAN

ASSOCIATE PROFESSOR: John Burke

RU 10 Russian for Beginners I 3 - 4
Correct pronunciation, reading ability, and fundamentals of grammar and syntax. Russian gradually becomes the working classroom and laboratory language.

RU 11 Russian for Beginners II 3 - 4

RU 20 Intermediate Russian I 3 - 4
Remedial pronunciation, grammar variety, conversation, and laboratory practice. Readings stress U.S.S.R. life, customs, and culture. Russian is the working language. **Prerequisite: Two years of high school Russian or RU 11 and/or Instructor's permission.**

RU 21 Intermediate Russian II 3 - 4
Continuation of RU 20.

RU 36 Russian Literature in English Translation 3 - 3
A seminar on a specific topic from Russian literature (e.g. Dostoevski & Tolstoy; Soviet Literature etc.) Lectures and readings in English. Emphasis on significant works of Russian and Soviet literature. May be repeated for credit.

RU 37 Russian Culture and Soviet Life (in English) 3 - 3
An introduction to Russian life and culture as manifested in Russian geography, art, music, film and literature. National characteristics of the Russian people and their influence on Soviet institutions. Everyday life in the Soviet Union. Includes a significant audio-visual component.

RU 90 Independent Study in Russian
Open to students in the language with the permission of the supervising instructor and the Department Chairman. Meeting times and credit by arrangement.

SCIENCE

PROFESSOR: Donald Schmidt
ASSOCIATE PROFESSOR: Esmail Valanejad
ASSISTANT PROFESSORS: Norman Fredette, Karl Lindquist

SC 10, 11 Physical Science I and II 3 - 4 each
For the non-scientist. Emphasis is upon the the building of conceptual models, solving techniques, and the processes of science.

SC 12 Astronomy 3 - 4
A study of planetary motion, the sun, stars, and galaxies. An observing program. A background of algebra is assumed.

SC 15 Environmental Physical Science 3 - 4
The study of (1) the environment, (2) the effects of pollution on the environment, ecosystems, and natural balance and (3) relevant background material in physical science as needed. **Prerequisite: Physical Sci. I, Earth, Sea and Air, or equivalent.**

SC 81 Science in Elementary Education 3 - 4
Content, methods, and resources suggested by curriculum groups are examined and experiences developed that exemplify current thinking in science education.

SOCIAL SCIENCE DEPARTMENT

CHAIRMAN: Donald Norton

The Social Science Department offers courses in economics, history, geography, and political science. These courses are listed under Economics, History, Geography, and Political Science.

SOCIOLOGY

COORDINATOR: Grainger Browning
Grainger Browning
PROFESSORS: Grainger Browning, Harold Melvin
ASSOCIATE PROFESSOR: A. Orin Leonard
ASSISTANT PROFESSOR: Patricia Macrides

The degrees of Bachelor of Arts and Bachelor of Science in Sociology require SO 10, and BS 10. SO 26 and SO 47 are strongly recommended. The remainder of the 36 semester hours in sociology courses, along with the appropriate prerequisites, are to be chosen in conjunction with the students advisor who will offer guidelines and recommend courses in view of potential employment, graduate work and general interest. The Bachelor of Arts degree requires foreign language proficiency at the second year college level.

SO 10 Introduction to Sociology 3 - 3
Structure and process in the organization of groups, with consideration of development, maintenance, and change variables. Prerequisite for all sociology courses.

SO 13 Social Research I 3 - 3
This course develops skills in research concepts and techniques related to sociological study.

SO 14 Social Research II 3 - 3
The course proposes to develop an understanding and appreciation of problems, methods, and practical uses of social research through experience.

SO 15 Sociology of Language 3 - 3
A study of the influence of several factors on immigration modes including family, peer group, mass media, variations in interpersonal verbal and non-verbal norms. **Prerequisite: SO 10**

SO 26 Social Theory 3 - 3
Social philosopher precursors, social scientific theorists from Comte to Parsons, current sociological schools.

SO 44 Urban Sociology 3 - 3
The structure and function of cities in history and modern life.

SO 45 Community Analysis 3 - 3
The community as a social system. Field Study: observation and analysis of local communities.

SO 50 Race and Ethnic Relations 3 - 3
An analysis of concepts and research useful for an understanding and evaluation of relations among ethnic and racial groups with particular emphasis on current black/white relations in America. **Prerequisite: SO 10.**

SO 51 Future Studies: Sociological Perspectives 3 - 3
A study of various systems currently in use for making future projections and familiarity with the current major writings in this area.

SO 62 Sociology of Religion 3 - 3
Structure and function of religious organization, beliefs, and practices. Current issues in American religion.

SO 63 Sociology of the Family 3 - 3
Structure and function of the family; trends and practical solutions to problems in family living.

SO 65 Industrial Sociology 3 - 3
A sociological study of industrial organizations and the process of industrialization. The impact of technology and related factors on work organizations will be analyzed. **Prerequisite: SO 10.**

SO 70 Social Problems 3 - 3
Consideration of major social problem areas such as energy, family, government, poverty, health, etc., from the viewpoint of gathering data for possible approaches.

SO 75 Criminology 3 - 3
A survey of the field of criminology including such topics as professional crime, organized crime, homicide, sex offenses, white collar crime, property offenses, juvenile delinquency, and the administration of criminal justice.

SO 76 Juvenile Delinquency 3 - 3
A critical examination of the major sociological theories of delinquency including an analysis of empirical studies. Attention will also be given to the juvenile judicial system and proposed treatment programs.

SO 80 Topic in Sociology 3 - 3
Offered for the supplementation and enrichment of offerings in the major. With permission this course may be taken more than once.

SO 85 Introduction to Anthropology 3 - 3
The study of cultures: Technology; economics; kinship; political structures; languages; and religion.

SO 86 Practicum in Sociology 6 - 15, 12 - 30
Provides a variety of field work experience under professional supervision or teaching aide experience.

SO 87 Senior Seminar in Sociology 3 - 3
Prepares students for GRE, reviews course material and complements student's overall knowledge of the field.

SO 90 Independent Study 3 - 3
Prerequisite: Approval of both advising Instructor and Department Chairman.

SPANISH

ASSISTANT PROFESSOR: Anthony Feroci
INSTRUCTOR: Jeannette Scharf

SP 10 Spanish for Beginners I 3 - 4
Correct pronunciation, reading ability, and fundamentals of grammar and syntax. Spanish gradually becomes the working classroom and laboratory language.

SP 11 Spanish for Beginners II 3 - 4
Continuation of SP 10.

SP 20 Intermediate Spanish I 3 - 4
Spanish America. **Prerequisite: SP 10 - 11 equivalent.**

SP 21 Intermediate Spanish II 3 - 4

SP 30 Spanish Civilization I 3 - 3
Prerequisite: SP 21 and/or Instructor's permission.

SP 31 Spanish Civilization II 3 - 3

SP 33 Spanish Literature I 3 - 3
A survey of Spanish and Spanish American literature; conducted in Spanish. **Prerequisite: SP 21 and/or Instructor's permission.**

SP 34 Spanish Literature II 3 - 3
Continuation of SP 33.

SP 35 Spanish Conversation and Composition 3 - 3
For students desiring greater fluency in speech and writing. Recommended for civilization and literature courses and foreign language specialization. **Prerequisite: SP 21 or Instructor's permission.**

SP 40 Practical Spanish for the Public Services Professional 3 - 3
Spanish for people in public services, human services, nursing, medical technology, special education, with special emphasis upon the cultural and psychological characteristics of Spanish speaking peoples.

SP 41 Practical Spanish for the Public Services Professional II 3 - 3
Continuation of SP 40 or Instructor's permission.

SP 88 Methods for Teaching Spanish in the Elementary School 3 - 3
Techniques and materials for use in elementary school. **Prerequisite: Minimum of 12 semester hours beyond beginner's level and permission of Instructor.**

SP 90 Independent Study in Spanish
Open to students in the language with the permission of the supervising Instructor and the Department Chairman. Meeting times and credit by arrangement.

SPECIAL EDUCATION

CHAIRMAN: Anne May
PROFESSORS: Rosemary Giovino, Anne May
ASSOCIATE PROFESSORS: William Brown, Katherine Flynn, Lawrence Gomes
ASSISTANT PROFESSORS: Carla Borg, Michael Fiorentino, Hattie Moreland, Donald Rapp, Michele Zide
INSTRUCTOR: Sandra Miller-Jacobs

The Bachelor of Science in Special Education must include SE 21, 22, 70, 86; PY 10, 15, 21, 71, 75, 77; AR 28; MA 83; and ED 86; and four electives in Special Education which are chosen from courses SE 23 through SE 69 and SE 90. Courses offered by the Industrial Technology Department for Special Education are acceptable as Special Education electives.

SE 21 - 22 Nature and Needs of Exceptional Children I and II 3 - 3 each
Etiology, classification, problems of children who have physical disability, mental retardation, emotional or social difficulties, giftedness. Clinical observations and consultations.

SE 25 Drugs and Schooling 3 - 3
A study of the history of drug use and abuse among school age children and adults. The course involves completing a research orientated learning package and implementing a learning contract designed to meet the students' personalized educational goals related to the topic of drugs and schooling. Topics discussed include preventative and treatment modalities implemented to effect young children, adolescents and adults who have concerns which involve the use of drugs.

SE 26 Affective Education 3 - 3
A study of various Affective Education Programs and theories designed to deal with affective-psychological development, motivation, and moral reasoning. Through completing a learning package and experiencing the process orientated approach the student will, as a culminating project, develop a unit of study. The unit will be designed for a defined population of children and will meet cognitive as well as affective objectives.

SE 30 Habilitation and Rehabilitation of the Special Child 3 - 3
An analysis of the adaptive problems of the handicapped child and adult.

SE 35 Behavior Management in the Classroom II 3 - 3
Students identify and develop solutions to classroom behavior problems of children. A variety of factors that effect the development of behavior patterns in children and the role that the teacher, school, and home

plays in this development are discussed. Emphasis is placed on techniques for changing or managing behavior in the classroom.

SE 40 Issues in Mainstreaming 3 - 3
Course is designed for Early Childhood and Elementary education majors as a post student-teaching elective. The issues will be applied to the public school system as they relate to the special needs child. Topics will include litigation, Chapter 766, mainstreaming, teacher expectations, accountability, the educational plan, reporting procedures, peer tutoring, human resources, and program models.

SE 41 Severely and Profoundly Handicapped 3 - 3
Emphasis on special content, methodology, and development of community programs. **Prerequisite: SE 21 and SE 22.**

SE 50 Early Learning Experiences for Exceptional Children 3 - 3
While working with young children through a practicum lasting 10 to 12 weeks, the student focuses on play as a means of working with these pre-school special children.

SE 51 Identification and Diagnosis of Children with Learning Problems 3 - 3
(1) Compare and contrast the theories of perceptual, motor, conceptions and language disorders.
(2) Identify and analyze screening and diagnostic procedures.
(3) Plan teaching processes for children with learning problems.

SE 61 Current Issues in Special Education 3 - 3
This course is designed to assist students in Special Education to gain a broad perspective on the aspects of controversy and change which are influencing the profession. In addition, with the inclusion of diverse and, in some cases, incongruent perspectives, the course is intended to stimulate critical thinking among prospective special educators. Various current issues effecting special needs children, their parents, teachers and the continually changing field of Special Education will be researched, examined, and discussed. **Prerequisite: SE 21, SE 22.**

SE 62 The Nature and Needs of the Multiple-Handicapped 3 - 3
This course deals with theoretical issues, diagnosis, field work, and planning of instruction for children with multiple handicaps. Specialized methods of evaluation in perceptional, motor, language, and tactile functioning will be emphasized. Students will plan strategies to teach motor, perceptional, language and life skills. Students will analyze a task, define the components of the task and identify related tasks utilizing similar skills. **Prerequisites: SE 21 and SE 22.**

SE 63 Problems in Language Arts for Special Education 3 - 3
Students identify, develop, use resources related to classroom problems in language areas. Stages of development and deviations of exceptional children are emphasized.

SE 64 Seminar in Special Education
Fall: Tactile and Motor Implications in Learning 3 - 3
A study of the major theories of motor learning in exceptional children. Assessment procedures and teaching methods are emphasized throughout. Students will actively participate in developing and demonstrating activities. **Prerequisites: SE 21, SE 22.**

Spring: Visual Implications in Learning
An introduction to visual impairment in children and youth. Etiology, early identification, methods and materials, and modes of communication (Braille, large print, low vision aids and new technology) will be stressed. Community and state resources will be incorporated. **Prerequisite: SE 21, SE 22.**

SE 65 Secondary Education Programs for the Exceptional Youth 3 - 3
Lectures, discussions, observations and readings for an understanding of how the secondary school can serve the exceptional youth.

SE 66 Language Development and Speech 3 - 3
In this course students will:
(a) Explain normal development of auditory receptive language and auditory expressive language from birth to 7 years;
(b) Analyze linguistic development, phonology, morphology, and syntax;
(c) Compare and contrast various theories of language acquisition;
(d) Select and administer instruments to diagnose receptive and expressive deficits, interpret the results, and plan teaching strategies.
Prerequisite: Juniors and Seniors.

SE 67 Program Development for Children with Learning Problems 3 - 3

In this course students will:

(a) Explain the Myklebust model of language behavior and determine dysfunctionings in factors associated with language development;

(b) Critically evaluate the research and literature relating to the development of linguistic and perceptual-motor performance;

(c) Interpret, compare, and contrast the theories regarding diagnosis and treatment of learning disabilities;

(d) Select and administer evaluative measures in the cognitive, perceptual and psychomotor domains;

(e) Plan and write education programs for individual children with moderate to severe handicaps based on assessment data;

(f) Make application of the principles of diagnosis and remediation and the theoretical formulations having relevance for learning disabilities in situations dealing with children in the public schools.

Prerequisite: The Integrated Professional Program (Fusion)

SE 68 Group Process and Counseling of Children with Mild to Moderate Special Needs 3 - 3

Goals of individual adjustment of exceptional children, evaluation of techniques for gathering and utilizing information, and principles and techniques of using such material in counseling children.

SE 69 Community Resources for the Exceptional Child 3 - 3

Identification of agencies, practices, and personnel, development of models, simulation of roles, and production of a guide.

SE 70 Integrated Professional Program 15 credits

The integrated program in the Department of Special Education is an effort to move the preparation of special education teachers from a college-based program to educational settings in the community. In this setting students will have constant interaction among academic observational and participatory experiences. When a concept or technique is introduced academically, the student will observe a demonstration and engage in practice where he/she can receive guidance, immediate feedback, and further demonstrations. In addition, he/she may raise questions based on his/her academic and participatory experiences and will have the opportunity to share ideas, problems, and learnings with other professionals. This program is an attempt to prepare teachers to best meet the educational/social needs of non-integrated and integrated children who manifest learning/behavior problems. The program can be viewed in terms of courses and credits. The learnings will go on in activities planned and will not necessarily mean that formal lecture courses are being given. Students enrolled in this course will observe the Spring Vacation of the participating school, not the College Spring Vacation.

SE 86 Student Teaching 12 SH

One of the significant aspects of the curriculum is student teaching. All students are assigned to two student teaching stations, each nine weeks in length, and at either the elementary or the secondary level as appropriate. One station is in a "Special Needs" room. The other is a regular classroom that is not a special needs room. The cooperating teachers selected for this program have been carefully screened in respect to certification requirements, their ability as teachers, and their identification with the program. Each student assumes complete classroom responsibility in each station guided by the cooperating teacher and the college supervisor. Students receive certification as elementary teachers with approval as special education teachers.

SE 90 Independent Study 3 SH

Review, development, and synthesizing of a problem in special education. Open to juniors and seniors with permission of Instructor.

SPEECH

ASSISTANT PROFESSORS: Eugene Casassa, Robert Welch
INSTRUCTOR: Isa Engleberg

SH 01 Speech Improvement 1 - 1

Remedial course. Students are assigned after diagnosis and recommendations of need for speech improvement. Individual and group therapy.

SH 10 Introduction to Speech Communication 3 - 3

An introduction to the theory and practice of interpersonal and public communication. Topics include: communication theory, self-concept, perception, language, listening, nonverbal communication, and public speaking. Meets General Education speech requirement.

SH 12 Business and Career Communication 3 - 3

Practical application of theory and methods of organizational communication to business and career communication problems. Emphasis is placed on those aspects particu-

larly important to a person planning to work for and/or within an organization including such skills as informative and persuasive briefings, interviewing, and conference techniques. Meets General Education speech requirement for students in business and career-oriented majors.

SH 13 Effective Speaking for the Electronic Media 3 - 3
This course will introduce the student to a variety of speaking experiences encountered by those who plan to use the electronic media as part of the performance of an occupation. The course should interest students who anticipate speaking roles in industry-made audio and video productions as well as those who aspire to careers as professional broadcasters. The course will include such assignments as the oral delivery of news items and public service announcements. Major attention will be given to the presentation of narratives coordinated with audio and visual aids. Meets general education speech requirements for those majoring in Communications/Media.

SH 14 Group Discussion and Conference Techniques 3 - 3
The fundamentals of group discussion in private and public settings including approaches to structuring groups, interpersonal relationships, evidence and reasoning, group and conference leadership, and extensive practice in varied group situations. Meets general education speech requirements.

SH 16 Public Speaking 3 - 3
Development of skills and assurance in public speaking through the preparation and presentation of specific forms of public address impromptu, extemporaneous, informative, persuasive, and special occasion speaking. Emphasis on audience analysis, rhetorical strategies, and performance. Meets General Education speech requirement.

SH 18 Interpersonal Communication 3-3
Study of theory and application of interpersonal communication with emphasis on the face-to-face spontaneous interaction of people in everyday life. Particular attention is given to helping students acquire greater control over their own interpersonal behaviors as speaker and listener as well as communication analyst. Meets General Education speech requirement only with permission of Instructor and student's advisor.

SH 20 Argumentation and Debate 3 - 3
Projects in argumentation and debate with emphasis on analysis, research, evidence, strategies, briefing, refutation, and the delivery of debates on representative questions.

SH 21 Intercollegiate Debate and Forensics 1 - 1
Opportunities for study and participation in debate and forensic speaking activities.

SH 24 Voice and Diction 3 - 3
Examination of the elements of vocal production and presentation with special emphasis on the study and application of phonetics and phonetic transcription as a tool for analysis and vocal improvement. Designed for students desiring to improve their voice and diction quality, accuracy, and clarity rather than a course for students with remedial problems.

SH 25 Career Speech Problems 3 - 3
The theory and practice of basic interviewing techniques in such areas as education, business, counseling, and employment. The process of interviewing will be examined from the point of view of the interviewee and interviewer with special concentration on each student's personal and professional interests.

SH 36 Persuasion 3 - 3
An analysis of persuasive techniques in theory and practice, with particular emphasis on those used by communicators attempting to gain public acceptance.

SH 27 Communication Theory 3 - 3
An investigation of modern communication theories through current literature and research. Allied work in sociological, psychological, and philosophical concepts of communication.

SH 28 Rhetorical Criticism 3 - 3
Exploration of approaches to the rhetorical criticism of significant speeches and speech movements, past and present. Includes rhetorical, literary, historical, linguistic, and quantitative methods of criticism.

SH 42 Children's Theatre 3 - 3
An introductory course in theatre for children, its principles and practices. Covers aspects of play production for juvenile audiences: script selection and evaluation, directing, acting, and staging techniques.

SH 43 Mime and Movement in Theatre 3 - 3
A workshop-oriented course utilizing the basic techniques of theatrical mime and movement with emphasis on developing each student's potential for effective physicalization on the stage.

SH 90 Independent Study 3 - 3

COLLEGE DIRECTORY

BUILDINGS AND GROUNDS

The 54 acre main campus includes academic buildings, an administration complex, three residence halls, the library/campus center, an auditorium/theater, a dining commons, and gymnasium. A short distance north of the campus are a 36 acre athletic and recreational area and the 1000 pupil McKay Campus School, a cooperative laboratory facility involving college education students and elementary and junior high school children. The Biology Department maintains a 75 acre field station on the property of the 4-H Camp Middlesex in Ashby, Massachusetts.

Anthony Building, 1936, was named for Willis B. Anthony, Director of the Industrial Arts Department during the period 1909 - 1947.

Aubuchon Hall, 1966, (William E. Aubuchon, Jr., Trustee of the Massachusetts State College System, 1965 - 1974), is a residence hall for 358 women.

Campus Police Headquarters, 1968, is located on Pearl Street at the corner of North Street.

Condike Science Building, 1963, (Dr. George F. Condike, professor of Chemistry 1947 - present and Academic Dean 1954 - 1956), houses the offices of the Academic Dean, the Dean of Undergraduate Studies, Biology, Chemistry, Computer Science, Physics, and Medical Technology Departments.

Conlon Building, 1976, (Florence Conlon, professor, 1920 - 1961), has the offices of Humanities Department including the Art, Music, and Philosophy facilities, the Industrial Arts Department, the Instructional Media Department with the photography laboratories and the television studio

Edgerly Hall, 1900, (Joseph G. Edgerly, Superintendent of Schools in Fitchburg, 1875 to 1914), contains the offices of Career Planning and Placement, Professional Experiences, and the Geography Department.

Hammond Building, 1975, was named for James J. Hammond, Instructor and Commonwealth Professor 1937 - 1962; President, 1963 - 1975; Chancellor of the Massachusetts State College System, 1975 - present. The Hammond Building contains the Campus Center, Library, Data Processing Center, Learning Resource Center, and the Massachusetts Film and Media Service Cooperative.

Herlihy Hall, 1957, (Charles M. Herlihy, Principal, 1927 - 1932 and President, 1932 - 1944), is the men's dormitory and houses 150 students.

Holmes Dining Commons, 1973, was named after Roger Franklin Holmes, professor of history from 1928 to 1969.

McKay Campus School, 1971, was named for Edith McKay who in 1950 donated ten acres of land to the City of Fitchburg. Besides being a campus elementary and junior high school, the McKay Campus School contains the offices of the Departments of Early Childhood, Elementary, Secondary, and Special Education and the Center for Study and Research in Human Development.

Miller Hall, 1903, (Joel D. Miller, a Massachusetts State Senator, 1894 - 1897 and member of the State Board of Education, 1895 - 1909), contains A.I.D. office; English, Speech, Mathematics, and Social Science Departments; Veterans Administration representative.

Newman Center, 281 Highland Avenue, owned by the Worcester Roman Catholic Diocese, is the Center for the Newman Association and includes a chapel, a lounge for studying and socializing, a kitchen and recreation room for all Fitchburg State College students.

Parkinson Gymnasium, 1957, named for William D. Parkinson, principal from 1920 to 1927, contains offices and classrooms of the Physical Education Department.

Percival Hall, 1909, (Harry F. Percival, professor, 1931 - 1953), houses the Behavioral Science Department including the Psychology, Sociology and Human Services offices.

Russell Towers, 1971, was named for Dean Helen Ross Russell, professor 1949 - 1966. It is a women's residence hall for 405 students.

Sanders Administration Building, 1963, (William J. Sanders, President 1945 - 1950), contains the offices of Academic Dean, Admissions, Alumni Relations, Assistant to the President, Associate Dean of Students, Bursar, Business Office, Dean of Administration, Dean of Students, Dean of Undergraduate Studies, Executive Vice-President, Financial Aid, Fiscal Affairs, Personnel, President, Public Information, Purchasing, Registrar, and Research, Planning and Development.

Thompson Hall, 1895, (John G. Thompson, principal, 1895 to 1920), houses the offices of the Dean of Graduate and Continuing Education, Director of the Evening Division, Director of Field Services, the Fitchburg State College Education Association, the foreign language faculty, and the Nursing Department.

Parking Regulations

Parking facilities at Fitchburg State College are limited, but are being gradually expanded.

Commuting students are required to obtain identification stickers if they wish to park in student lots on campus.

There are no parking areas assigned to resident students. Junior and senior residents whose curricula require travel to nursing and teaching assignments should confer with the Dean of Students Office.

More specific information is contained in the booklet entitled "Motor Vehicle Regulations."

Animals on Campus

Due to health and safety considerations, no animals can be allowed on campus or in campus buildings at any time. Obvious exceptions would be seeing-eye dogs and laboratory animals.

MASSACHUSETTS TRESPASS ACT

Fitchburg State College is governed by the Massachusetts Trespass Act, enacted June 2, 1969.

Trespassing Upon the Land of Certain Institutions

Whoever willfully trespasses upon land or premises belonging to the Commonwealth, or to any authority established by the general court for purposes incidental to higher education . . . . after notice from an officer of any of said institutions to leave said land, remains thereon, shall be punished by a fine of not more than $50 or by imprisonment for not more than three months.

CORRESPONDENCE AND VISITS

The post office and telegraph address of the College is:

Fitchburg State College
160 Pearl Street
Fitchburg, Ma., 01420

The telephone number of the College is: (617) 345-2151.

The following administrators have information on subject matters listed below:

The President:
General interests of the College.

The Academic Dean:
Academic services, faculty and academic professional staff.

The Dean of Undergraduate Studies:
Curriculum, academic work of students.

The Registrar:
Academic records, transcripts.

The Dean of Students:
Financial Aid, scholarships, remunerative work, housing, athletic programs, career planning and placement.

Director of Admissions:
Admission to the freshman class and transfer from another college.

Bursar:
Payment of bills and business matters.

CLASS CANCELLATIONS

In the event of inclement weather the cancellation of classes will be reported on WBZ, WEIM, WFGL, WTAG, and WLMS radio stations.

ADMINISTRATION

Office of the President

VINCENT J. MARA, President
B.S.Ed., Ed.M., Worcester State College; Ph.D. University of Connecticut. 1976

LAWRENCE A. QUIGLEY, Executive Vice President (Leave of Absence)
B.A., Iona College; M.A., Ph.D., Fordham University. 1968

FRANCIS J. PILECKI, Academic Dean
A.B., St. John Fisher College; M.Ed., Ed.D., University of Rochester. 1974

WILLIAM DONOHUE, Dean of Students B.A., University of Northern Iowa; M. A., Ph. D., Michigan State University. 1978

JOHN J. BOURSY, Dean of Administration
B.S., Holy Cross College; M.B.A., Clark University. 1964

THOMAS COATES, Director of Personnel Services
B.S., Western Michigan College; J.D., New England College of Law. 1974

FRANCIS X. GUINDON, Director of Research, Planning and Development
A.B., Notre Dame University; M.Ed., Bridgewater State College; Ed.D., Harvard University. 1970

CARLETON J. LAPORTE, Staff Assistant to the President
A.B., M.A., Assumption College; J.D., Boston University. 1969

ROY HALL, III, Director of Data Processing
B.S., Framingham State College. 1977

Academic Affairs

FRANCIS J. PILECKI, Academic Dean
A.B. St. John Fisher College; M.Ed., Ed.D. University of Rochester. 1974

CHRISTINE COSGROVE, Dean of Undergraduate Studies
A.B. Mt. Holyoke College; M.S., Ph.D. Georgetown University. 1971

JOHN F. NASH, Dean of Graduate and Continuing Education Studies
A.B., M.S. Boston College; Ed.M. Boston University; Ed.D. Syracuse University. 1958

JOSEPH A. ANGELINI, Director of Admissions
B.S. Providence College; M.Ed. Boston College; C.A.G.S. Boston University. 1958

GEORGE J. AZIZ, Registrar
B.S. Boston University; Ed.M. Worcester State College. 1970

WILLIAM T. CASEY, Director of Library
B.S., M.A. Boston College; M.S. Simmons College. 1967

RICHARD F. CONDON, Principal, McKay Campus School
B.S., M.Ed. Fitchburg State College. 1959

OSCAR W. HARRELL, II, Assistant Director of Admissions, Director of Alternatives for Individual Development
B.A. Virginia Union University; M.A., C.A.G.S. Assumption College. 1974

ROBERT R. LEE, Director of Professional Experiences
B.S. University of San Francisco; M.A. San Francisco State College; Ed.D. Harvard University. 1970

NORMAN C. LOCKE, Director of Instructional Media
B.A., M.Ed. Boston University. 1971

LAWRENCE A. OVIAN, Director of Field Services
A.B. Bates College; Ed.M. Pennsylvania State University; Ed.D. University of Massachusetts. 1971

ROBERT W. GREENE, Associate Registrar
B.S. Worcester State College; M.Ed. Northeastern University; Ph.D. University of Connecticut. 1960

WILFRED E. PARO, Associate Director of Admissions
B.S. Arnold College; M.Ed. Boston University. 1970

PAULA I. ROBBINS, Associate Director of Graduate Studies B.A. Vassar College; M. Ed. Boston University; Ph. D. University of Connecticut. 1977

BRIAN F. CLARE, Assistant Director of Instructional Media
A.S. Greenfield Community College; B.S. Fitchburg State College. 1971

JOHN J MAZEIKA, Assistant Principal, McKay Campus School
B.S. College of the Holy Cross; M.Ed. Boston College. 1966

SARAH J. FRANCIS, Staff Assistant/ Admissions Officer B.S. in Ed., M.Ed., Fitchburg State College. 1977

ALFRED M. LEE, III, Staff Assistant, Media Engineering and Production Services
B.A. Brooklyn College; M.F.A., Rutgers University. 1976

ARTHUR M. PINSONEAULT, Staff Assistant/Supervisor, Laboratory Assistant B. A. University of Massachusetts ; M. A. State University of New York. 1977.

HOWARD J. RIVERS, Staff Assistant/ Media Engineering and Production Services, Certificates: Main Photographic School; Nikon School Seminar. 1977

MARK L. WHITMORE, Staff Assistant/ Admissions Officer B. S. Fitchburg State College. 1977

Office of the Dean of Students

WILLIAM R. DONOHUE, Dean of Students B. A., University of Northern Iowa; M. A., Ph. D., Michigan State University. 1978

A. JANE ROGERS, Associate Dean of Students B. S. Ed., B. A., M. A., The Ohio State University; J. D., Golden Gate University School of Law. 1977

SHEILA A. SHAFFER, Director of Financial Aid B. S., Boston University. 1977

RAYMOND E. BRYANT, Director Career Planning and Placement B. S. Ed., Fitchburg State College; M. Ed., California State College. 1971

RAOUL REBILLARD, Director of Campus Center B. S., University of Maryland; M. S., Southern Connecticut State College. 1975

VICTORIA E. ANGIS, Assistant Director of Campus Center B. S., Southwest State University. 1976

MICHAEL B. MCNAMARA, Staff Assistant — Weekend and Night Supervisor, Campus Center B. A., University of Massachusetts. 1976

PAUL E. COCHRANE, Medical Director, Student Health Service M. D., Tufts University. 1977

DEBORAH G. WOOLARD, R. N., Staff Associate — Nurse Practitioner, Student Health Service. 1977

BESSIE J. PALMISCIANO, Staff Associate - Head of Residence B. A., M. A., University of Rhode Island. 1977

Office of the Dean of Administration

JOHN J. BOURSY, Dean of Administration
B.S., Holy Cross College; M.B.A., Clark University. 1964

MICHAEL T. RIVARD, Director of Fiscal Affairs
A.A., Worcester Junior College; B.S., Boston University;M.B.A., Anna Maria College. 1966

EDWARD F. LEARY, Bursar
B.S. in B.A., Boston University; M.Ed., Fitchburg State College. 1971

JOHN STROHBEEN, Superintendent of Buildings and Grounds
B.S., Massachusetts Institute of Technology. 1970

J. DAVID McGUIRK, Staff Assistant for Administrative Services, Campus Police. 1969

FACULTY

ROSE ANN ADDORISIO - B.S. Ed., M.Ed. Fitchburg State College. Assistant Professor, McKay Campus School. 1969

ROBERT ALLEN B.S. State University College at Oswego, N.Y.; M.S. Bowling Green University. Instructor, Industrial Arts. 1975

NEAL ANDERSON A.B., M.S. University of Utah; Ph.D. Cornell. Associate Professor, Biology. 1970

JOSEPH A. ANGELINI A.B. Providence College; Ed.M. Boston College; C.A.G.S. Boston University. Director of Admissions and Assistant Professor, Mathematics. 1958

HENRY ARES B.A. University of Moncton (Canada); M.Ed. Fitchburg State College. Assistant Professor, McKay Campus School. 1970

LAWRENCE ARNOLD B.A. King's College; M.A. Fordham University; Ph.D. Trinity College (Dublin). Associate Professor, History. 1968

ELMER ARSENAULT B.E. Tufts University; M.F.A. Syracuse University. Associate Professor, Art. 1958

LILLIAN BANNON B.S. Nursing Ed. Boston College School of Nursing; M. Ed. Boston College; M.A. Assumption College. Associate Professor, Nursing. 1962

PATRICIA BARBARESI B.S. Ed. Fitchburg State Teachers College; M.A. University of Connecticut; Ed.D. Cornell University. Professor, Education. 1965

JAMES BARBATO A.B. Assumption College; M.A. Clark University; Ph.D. Boston University. Associate Professor, Geography. 1972

WILLIAM BARKER A.B. Boston University; M.A. Brandeis University; Ph.D. Brandeis University. Chairman and Professor, English. 1971

THOMAS BATTINELLI A.A., B.S. Boston University; M.Ed. Boston College; Ed.D. Boston University. Chairman and Professor, Physical Education. 1960

DONNA BECHIS B. F. A. Hunter College; M. F. A. University of Pennsylvania. Assistant Professor, Art. 1974

ROBERT BENTLEY B. A., M. A. Wayne State University. Assistant Professor, Mathematics. 1977

ALAN BERNSTEIN B.A. Hofstra University; M.A. University of New Hampshire; Ph.D. Tufts University. Associate Professor, Psychology. 1969

HOWARD BESNIA A.B. Clark University; B.F.A., M.F.A. Yale University. Associate Professor, Industrial Arts. 1960

GEORGE BOND A.B. Dartmouth College; M.S., Ph.D. University of Rhode Island. Assistant Professor, Biology. 1973

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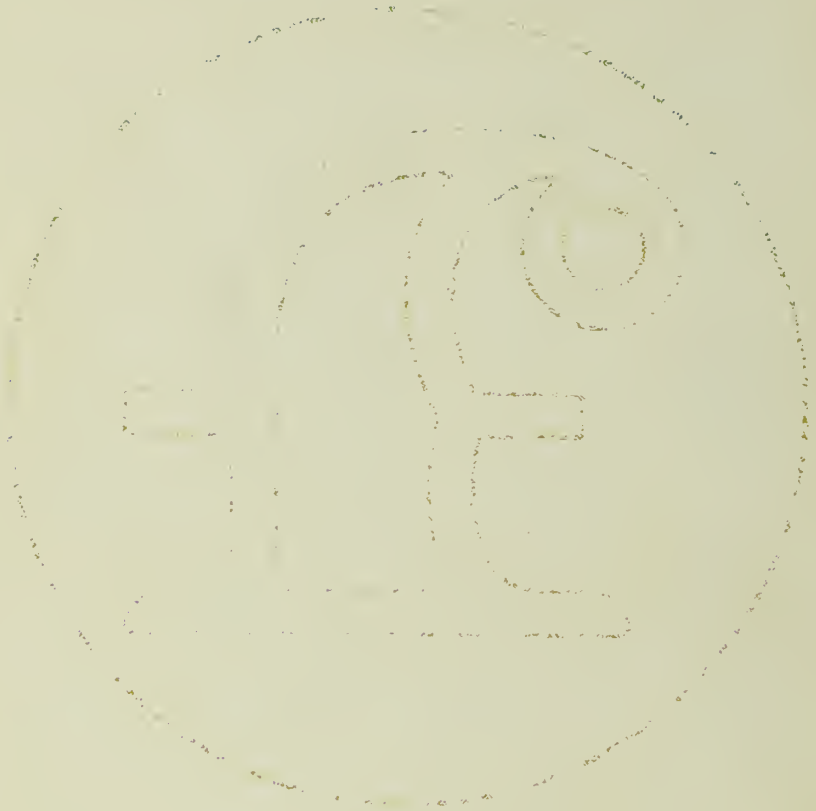
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